

Specialized Training for Dentists Treating Children with Handicaps



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An Evaluation

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service • Health Services Administration



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INTRODUCTION

Available evidence on the dental health problems of handicapped children indicates that there is a need for training programs that prepare pedodontists to treat this population (Miller, 1965; McConnell, 1967; Latimer, 1969; Mathewson and Beaver, 1970; Gelbier, 1972). Handicapped children have a greater prevalence of serious dental pathology and, in addition, have a lower frequency of contact with dental care providers (Lyons, 1960; Gullikson, 1969; Horowitz, Greek, and Hoag, 1965; Steinberg and Zimmerman, 1967; Butts, 1967; Westphal, 1971; Sandler, Roberts, and Wojcicki, 1974). There is preliminary evidence that dental care not only improves the physical health of handicapped children, but improves certain behavioral problems as well (Adelson, 1965). Cognizant of these problems and issues, the Federal Government has long been involved in the funding of specialized training programs for dentists who treat children with handicaps. Administration has passed from the Children's Bureau, through Maternal and Child Health Service, to the Office for Maternal and Child Health (OMCH). Since 1973 OMCH has been an operating unit of the Bureau of Community Health Services (BCHS), Health Services Administration, Public Health Service. In performing its management function, BCHS decided to supplement its routine monitoring activity with a systematic, empirical evaluation of the pedodontic training programs they sponsored.

In 1974, the contractor was awarded a contract that had as its objectives:

- A. development of a general evaluation model which could be used to evaluate a wide range of training programs sponsored by BCHS, and
- B. application of this general evaluation model to a specific training program set, namely specialized training for dentists treating children with handicaps.

The purposes of the general evaluation strategy are:

- 1) to provide a conceptual framework, e.g., a theoretical rationale, for assessing health training programs, and

- 2) to provide a research strategy or design for empirically ascertaining the structure and efficiency of function of such programs.

The purposes of the application to pedodontic training programs are:

- 1) to provide a substantive evaluation of a set of programs which have been funded for several years in the absence of a specific detailed evaluation, and
- 2) to assess the adequacy of the research strategy and the conceptual framework for future applications in the health field.

This report contains the results of both segments of the project, including the basic logical approach and the methods used to obtain those results. Chapter 1 is devoted to the development of the general evaluation approach to be used in evaluating pedodontic training programs. Chapters 2 and 3 contain the results of the evaluation approach as applied to the pedodontic training programs. Chapter 2 includes the findings from the site assessment component, and Chapter 3 comprises the results of the practitioner survey component. Chapter 4 contains the linkage between the graduate training programs and their graduates. Chapter 5 contains the contractor's recommendations for improving the evaluation approach and specific suggestions related to pedodontic training.

CHAPTER 1. GENERAL EVALUATION APPROACH

1.1 INTRODUCTION

A major task of this contract was to develop a general evaluation strategy for assessing various health training programs. The strategy developed was essentially an integration of existing disciplinary and functional approaches. Evaluation as it is generally applied means a systematic process whereby the degree of achievement of a predetermined objective is investigated, usually in relation to some real or hypothetical intervention. In a field as broad as health, impinging on an array of human activity and illness, the subject of the evaluation, the specific process, and the evaluative results are, not surprisingly, diverse. Such diversity of concepts, methods, and results requires careful examination and synthesis to determine the most useful strategy in any given evaluative context. To accomplish this specific evaluation, it is necessary to place the tasks into a general evaluation framework. Our overall approach can be described as "evaluative research" (Suchman, 1967), that is, utilization of scientific research methods and techniques to acquire data which increases the possibility for "proving" rather than "asserting" the worth of a program. (For a fuller elaboration of the logic and method of evaluation research, see Struening and Guttentag, 1975.) This chapter sets the general context of the elements of evaluation and proceeds by steps toward the specific application to pedodontic training programs and the handicapped child.

1.2 THE MEANING OF EVALUATION

1.2.1 Definitions of Evaluation

Definitions of evaluation abound. The American Public Health Association (1960) states that it is the process of determining the value or amount of success in achieving a predetermined objective. A World Health Organization (1967) definition of evaluation is the process of assessing the achievement of the stated objectives of a program, its adequacy, its efficiency, and its acceptance by all parties involved. To Riecken (1952), evaluation is the measurement of desirable and undesirable consequences of an action that has been taken toward some goal that is valued. Weiss and Rein (1969) state that it is an attempt to find reasons for failure and forms of unanticipated changes that happen and ones that do not.

Many authors have approached the meaning of evaluation by discussing its uses. A W.H.O. Scientific Group (1973) has summarized the ways in which evaluation can be utilized:

- 1) as a scientific and technical base which includes theory-building and providing a basis for the dissemination of knowledge and technology,
- 2) for planning,
- 3) for program direction including the improvement of efficiency, performance and quality, and control of costs, and
- 4) for job performance.

This is not presented as an exhaustive list but as an example of the span of evaluation applications.

Another way of exploring the meaning of evaluation is to look at the diversity of methods which have been used to gather evaluation evidence. This listing of general evaluative methods is presented in a rough order of increasing complexity:

Opinion: a loosely structured summary of feelings about an issue. Voting predictions and congressional mail represent examples of this amorphous, but politically potent, type of evaluation.

Peer Judgement: a more structured and professional judgmental process which considers the worth or appropriateness of a particular decision, action, or

program. Judgmental peer review is currently a popular method of evaluating the quality of medical care and has been the foundation of the historic and ambitious biomedical research programs of the Federal Government.

Activity Statistics: the use of available information generated by a health program in the course of its operation. Length of hospital stay and number of doctor visits are both examples of familiar activity information. It is difficult if not impossible to equate this data with a defined population-at-risk.

Systems Analysis: a structured review of the problem, resources, organization, and input-output relationships. Taking a holistic view of the situation under study, it may or may not use data sources. The phrase covers a variety of methodological approaches, and can rival evaluation in terms of ambiguity.

Ad Hoc and Special Studies: generally convened for an evaluative review either on an episodic or periodic review basis. This category was included merely to indicate that data from routine sources, vital statistics, and demographic sources may be supplemented with special sources for a particular review period.

Descriptive Studies: to set down the various aspects of the program in relation to a set of factors and to describe the observed relations or associations between these factors.

Comparative Studies: to compare the presence of the program to be evaluated with its absence, at either the same or different sites. The main purpose is to control for the variables to be studied.

Experimental Design: specific factors and interventions are set, then hypotheses about the outcomes of the program are tested in a rigorous experimental context.

Clearly the word evaluation conjures up a variety of meanings. Additionally varied, and often understated, is the methodology employed. These techniques, in conjunction with the clarity of the concept of evaluation, determine the validity of the evaluation activity. This is the reason that this paper lays such heavy emphasis on the quantitative methodology and on steps in carrying out the evaluation in practice. In many ways this is the "underserved" area of evaluation.

1.2.2 Specific Areas of Program Evaluation

All aspects of a program are subject to evaluation. Several important health program facets as identified by a W.H.O. European Region Conference (1973), are:

Effectiveness: the results of the program in relation to its stated objectives. The classic example is the protection afforded in a vaccine program.

Safety: the assessment of increased risk of other unintended side effects due to exposure to activities of the program. A classic example would be exposure to radiation in a screening or therapy program. (Note: this can include occupational hazards to the provider as well.) The notion of safety is often discussed under the word "iatrogenic" diseases.

Quality of Service: the performance of service according to a set of technical standards. The current development of Professional Service Review Organizations is a specific example of quality evaluation.

Adequacy of Services: the extent to which the population at need has been covered by the services, or the extent to which the services have covered the various aspects of the underlying problem. This particular meaning is closely related to the community impact concept of care.

Expediency: an assessment of the adequacy of the decision-making process with reference both to its "quality" and to the time lag between decision and implementation. This factor is an important part of planning, management, or organizational evaluation.

Accessibility: several components related to the delivery of services (physical location of the facility, economic factors such as payment for services, and referral patterns) with the resultant effect on appropriate use of other components of the health care system.

Equality of Services: the degree of homogeneity of service provisions for equivalent needs among various defined subgroups of the population.

Acceptability of Services: the degree to which the services are declared satisfactory by both the consumers and the providers of the service. The report emphasizes that service is too often organized with disproportionate emphasis on the providers' convenience.

Appropriateness: in this context, the utility of the underlying strategy of the program in relation to its goals. It examines whether a different program would be more expedient in accomplishing the goal.

Flexibility: the degree to which a program can accommodate itself to changes in technology or resources or to unforeseen needs. The report seems rather hopeful that observations on flexibility could lead to "isolating factors that are crucial in this regard".

Cost-effectiveness/Cost Benefit: this topic, although related to efficiency, has been presented separately with a comment that it "is a controversial one in health services evaluation". The report cites the difficulty of equating benefits among programs or quantifying in comparable economic or other units. Three general types of benefits were set forth: indirect economic benefits of increased production, savings in future medical care costs, and direct health benefits (improvement in health as such). Despite reservations about the application of cost benefit analyses, several illustrations of studies were presented.

This discussion indicates the broad range of evaluative studies and the interrelated nature of evaluative elements. The above list is an excellent summary of the different facets of evaluation. It is also a helpful guide in determining the specific purpose of a proposed evaluation.

The foregoing discussion demonstrates that it would be folly to assume that there is a rigid meaning for the word evaluation. For this reason we have chosen to emphasize the process nature of evaluation.

1.3 EVALUATION AS A PROCESS

Suchman (1967) emphasizes the fact that evaluative research makes use of scientific methods and techniques. The term "evaluation" in this study assumes the use of this approach. As such, the evaluative process is a research process with the same procedures as in other forms of research. Evaluation should increase the possibility for "proving rather than asserting" the worth of a program. As Senator Mondale stated (1975), a program too often has "the cold facts", that is, the inputs into a program in terms of money, manpower, and organizational arrangements, but few of "the hot facts", the outputs or results as related to the program's advertised goals. The Senator was speaking in reference to a legislator's appraisal of a program, which is an episodic activity. An administrator or a provider is also concerned with the events between inception and legislative review. He is concerned with the development and monitoring of a program on a continuous basis as well. In fact, it is this developmental and monitoring phase that may well be the crucial time for evaluation as it bears on implementation.

Ideally, then, program evaluation calls for a mechanism that is in place and functioning at the inception of a program. In this way, data can be on hand in a timely fashion on a prospective basis. Although this is the ideal case, rarely is this the state of affairs encountered. Evaluation usually begins when program activities are well under way, with a slim base of objective information, and in fact often occurs post factum, requiring a retrospective basis of study. In this fashion, evaluation takes on an all or nothing aura, much to the detriment of the view that evaluation is a constructive, ongoing, well-defined process whose function and operation are known to the various parties who participate in the program (Suchman, 1967; 1969). This is not to say that the evaluation process is completely synonymous to the scientific method. Suchman (1967) and Lynn (1973) point out the subjective nature of evaluative research. The latter states that:

Few evaluators are able to formulate and conduct their research with completely detached attitudes. Choices of conceptual frameworks, assumptions, output measures, variables, hypotheses and data leave latitude for judgement and the values of the researcher often guide the decisions to at least some degree.

This emphasizes the human dimension, and as stated previously, the goals themselves represent personal or societal values. Methodologically, this is an additional argument for the multi-disciplinary nature of an evaluation exercise. It is in these settings that not only is the ingenuity of design enhanced, but these value biases are more likely to be explicitly recognized and dealt with.

1.3.1 Goals and Objectives

The genesis of the evaluation process lies in the assessment of the goals and objectives of the program, which is equivalent to the definition of the problem. We have illustrated this with respect to the pedodontic training programs. Although the terms "goals" and "objectives" are used interchangeably by many writers, for the purpose of this discussion, the distinction made by Blackman and Blum (1969) will be used:

Goals: Goals are descriptions of aspirations which represent fruition of the ideals established by values. They are generally given a more definite set of dimensions when inserted into plans, but their nature may be spiritual as well as practical. It is for this reason, in part, that they have to be broken down into more tangible sub-elements, the objectives.

Objectives and sub-objectives: Specific endpoints must be established for the programs which are to bring realization of goals. The time, place, quantity and quality of change in persons or things constitute objectives. For purposes of programming, organizing, controlling and evaluating, plans must deal with such items as division of labor, and must pinpoint the time, spot, and mode of impact for program efforts. As a result, objectives are further broken down into sub-objectives which spell out the points of impact and what is to be accomplished at each.

Goals and objectives and goal attainment are at the heart of evaluation. In our opinion, however, the use of this phrase as synonymous with the evaluation process is erroneous. It is the first step, and the ultimate purpose of evaluation. But it is meaningless without an explicit discussion of the methodology, and of the concept of the process under scrutiny.

1.3.2 General Design Considerations

This section will attempt to summarize the methodological considerations and distinguish between several major points of departure as they affect program evaluation. As indicated previously, the choice of design is dictated by a complex of objectives, resources (both intellectual and physical), and constraints, as well as intrinsic methodological procedures. But once chosen, the design and its application determine the quality of the results of an evaluation. This section is primarily devoted to the latter consideration with respect to the characteristics of a particular type of design. Three general types are mentioned, with the major emphasis being given to the comparative study design.

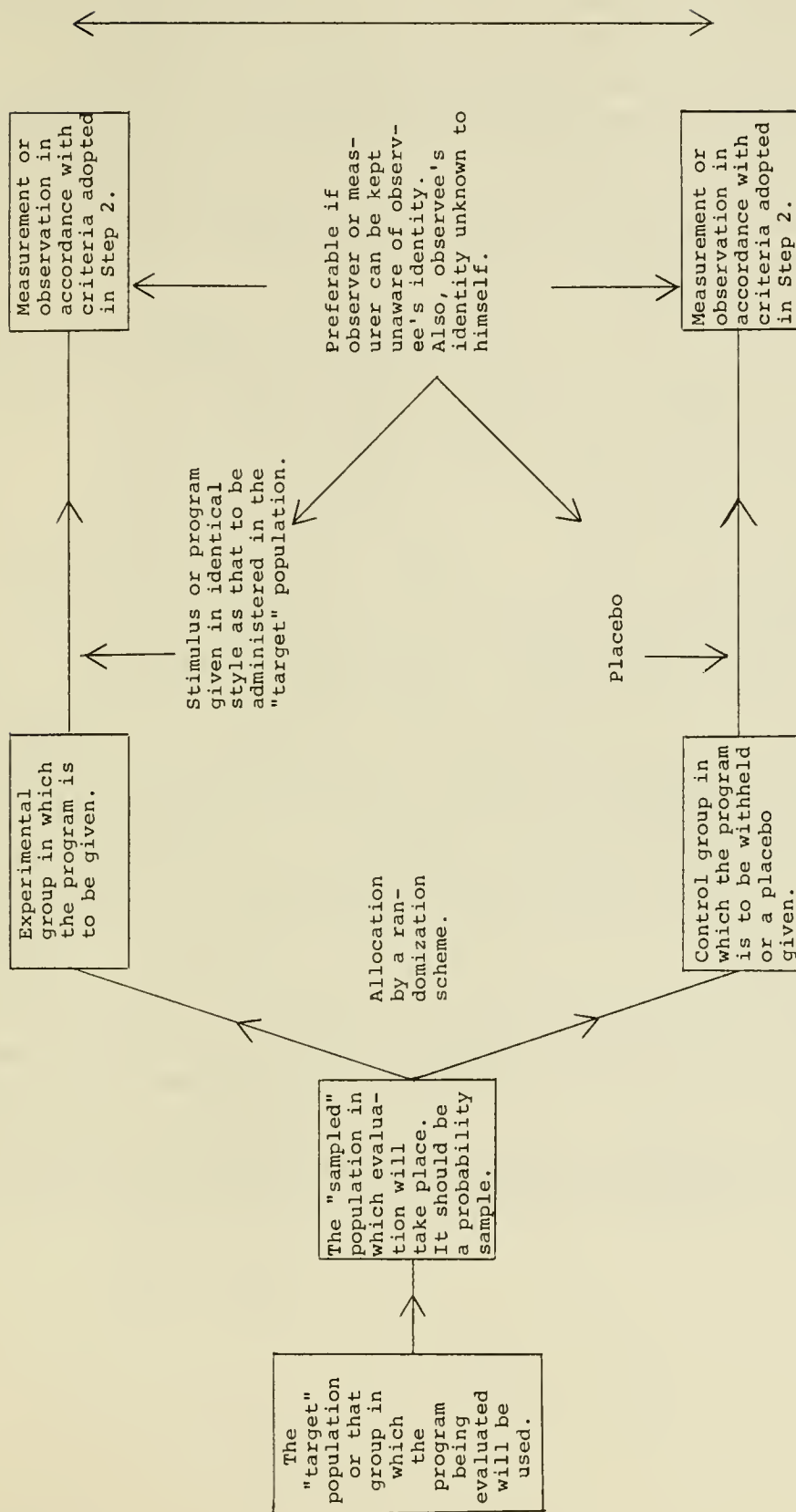
Descriptive Studies: These are studies that assay a selected phenomenon, and show that it exists and can be counted or its specific distribution obtained. The focus is the size or amount of some variable with respect to a chosen measure. In this way a descriptive study is estimation oriented.

Analytic Studies: By the way of contrast, these studies attempt to answer a question or test a conjecture concerning some phenomenon. The goal is to assign objective judgements to the significance of the observed results. These studies are inference oriented.

Comparative Studies: In this instance the structure of the inquiry, whether descriptive or analytic, is against some comparison value, standard, or group. For simplicity let us assume that a health program is to be studied (although it could be a number of interventions, procedures, or items). The design may employ a contrasting "comparable" area in which no such program is in operation and identical types of observations are made. This helps to identify the effects due to the program as opposed to those due to "other" underlying factors. The reader will recognize this as a community analog to a "control" or "placebo" group in a controlled clinical trial of a medical procedure.

In 1955, Greenberg and Mattison summarized the use of comparative trials in evaluation designs in a flow chart (Figure 1 on page 11). The comparative trial, using a case control approach, provides a cancelling or equalizing effect on the unknown and possibly common variables that are also in operation. Although this illustration is that of a treatment control to test some hypotheses instead of a program, a descriptive study can have a similar comparative structure.

FIGURE 1



FLOW CHART

This flow chart illustrates optimum principles and sequence to be followed in conducting a valid experimental design to evaluate a health program. (Reproduced from Greenberg, Bernard B., and Berwyn F. Mattison, "The Why and Wherefore of Program Evaluation," Canadian Journal of Public Health, vol. 46, July, 1955, p. 298.)

In a study of a training program, two types of control groups are possible. In one type, a separate comparison group at another site is required, and both groups are studied at the time of the evaluation. In the second type, the unit of observation (a study site) is studied before the inception of the program and again at the end of the evaluation period, thus serving as its own control group.

It is important to note that in one case we have mentioned comparison among one or more different study areas, a "geographic" distance. In the second case we have a comparison in a "time" distance, with only a single study site. These two dimensions, time and multiple units of observations, may be combined in a variety of designs with potentially good results.

Further discussion can elaborate other aspects of design, but of principal concern is the comparative aspect of an evaluation design whereby a contrast between various aspects of a program and a suitable benchmark can be made.

1.3.3 Unit of Observation and Its Method of Selection

Inevitably the question of design must turn to the kinds of observations to be made. In some cases the universe or target population is known; in others it must be estimated. In some studies, only a proportion of a subgroup (a sample) is to be observed, or part of an intervention; in other studies the entire population is examined. In all cases there must exist a way of defining a target population (the unit of observation), a way of describing its members (the universe and its frames), and a detailed description of the selection or assignment of members to the various study components (a sampling scheme, or a census procedure). There are clearly many technical issues that are implicit in this listing but must be explicitly specified. For example, in examining the care given to a handicapped child in a clinic, the entire set of medical records might be subjected to analysis (a census). On the other hand, it could be that more information than is contained in the medical records is required. In this case a sample might be drawn for a follow-up study. The medical records would now become the sample frame, and the observations would be made by an intuitively independent mechanism or a subsample of patients drawn from the universe, as defined by the medical records. If we add a comparative aspect, a suitable contrast group of handicapped children not treated in this clinic, then an additional sample frame and selection is required.

Units of observations, records, interviews, and sample design are all components of the design question representing facts and mechanisms at the disposal of the evaluation design.

1.3.4 Time Dimension

This paper has occasionally referred to the time dimension: the timing of evaluation in the program evolution, and the time required for the evaluation itself. In terms of study design, the timing problem deserves explicit mention. Evaluation designs can be characterized by whether a study is being carried out:

- 1) retrospectively: observing an event and tracing it back in time. For example, taking a history of children with congenital malformations and searching for clues to the etiology of the condition (the thalidomide risk study).
- 2) cross-sectionally: finding the status at some given moment or period in time. For example, estimating the DMF rate among young adults in a community with fluoride against that of a comparable community without fluoride.
- 3) prospectively: commencing with a given point in time, observing a study population for the occurrence of outcomes as time moves on. For example, following smokers and nonsmokers and their subsequent mortality experience.

These studies are demonstrably different. Furthermore, studies may contain elements of each (retrospective, cross-sectional, and prospective). These may affect the way we select our sample. For example, in a prospective study we may follow the same units through time (a cohort), or select a new sample from the target population (a cross-section) during different time intervals.

While there are many technical considerations and subtleties that can increase the effectiveness of an evaluation, there are as many pitfalls to be avoided. In our experience the most common flaws, beyond the obvious failings of straightforward logic, are:

- 1) Failure to develop appropriate methods or instruments before starting the evaluation.
- 2) Underestimation of the time required to interrelate activities.

- 3) Failure to adhere to the evaluation protocol (a severe problem in cooperative clinical trials or field operations).
- 4) Inadequate understanding of data analysis and data processing.
- 5) Lack of adequate quality control or review procedures.
- 6) Misconception concerning the use of the evaluation results or misapplication of results.

1.3.5 Indices

There are many ways of discussing classes of indices or variables. In the rubric given below, we have attempted to discuss indices by broad groups that can be applied to various subcomponents of any model, but that are consistent with the mixed model and special subcomponent related to the primary goal of this evaluation. In all cases it is a matter of specification related to design and measurement.

This rubric follows a type of hierarchical structure in a progression related to a program activity sequence:

- 1) Demographic or background measures: These include the factors of age, sex, or type of institution, depending on the basic unit of observation. They are used to define the population-at-risk, its initial state, and subsequent changes.
- 2) Functional status: The "way things are"; measures or observations on the capacity to perform or to carry out tasks according to some defined criteria.
- 3) Diagnostic: What are the attributable factors? Assignment of the functional states to some underlying causes. Often these are "negative" measures--ill health or organizational impediments--but this need not be the case. These should be related to the particular populations-at-risk.
- 4) Standards or normative needs or levels: The kinds of services or actions that are generally "agreed" upon to be required in order to either maintain or change the functional status or diagnostic distribution relative to defined background measures. It can include resource needs and input levels.

- 5) Activity: Those things that are done; the throughput of the program in terms of its operations.
- 6) Output and outcome measures: The summarization measures of the change. These are interrelated with the previously listed components and represent the desired, measurable objectives and their degree of attainment. In the case of an inferential study, it is the test of an hypothesis.

Frequently this can represent a cyclic feedback process, particularly in an ongoing evaluative setting. In this manner all measures are time-dependent. In other cases the norms may change with new knowledge or expectations. There is the element of variability in that a range of responses are encountered in each measure. The range of variability and the presence or absence of bias in measurement must also be considered as part of the indices question. In general, indices must be appropriate to the goals and objectives, appropriate to the realities of the dynamics of health phenomena, and technically sound in application.

In summary, we conceive of evaluation as a process which explicitly incorporates and defines:

- 1) program goals and objectives,
- 2) a specific evaluation design and appropriate methodological tools and procedures, and the rationale for these choices,
- 3) selection of observational units, time frame, variables to be investigated, indices to be constructed, and specific analysis strategy, and
- 4) the limitations of the study, and the appraisal of the validity of the results and methods.

We are not proposing that each evaluative design must slavishly follow this outline. We are saying that these are characteristics that an empirical evaluation should have.

1.4 APPLICATION TO PEDODONTIC TRAINING PROGRAMS

In order to assess a complex process, it is necessary to array its component parts. A single scheme to describe a complex and robust process in all its detail is a fragile undertaking. Yet it is a necessary undertaking, at least empirically, in order to indicate the strategy that the evaluation will follow. Simply, it is a way of framing appropriate questions and helping construct appropriate mechanisms to ensure an intelligent reply.

What characteristics should such an approach have? It should describe the dental care process in a global fashion. In the case of the specific training program considered here, it must conform to the general characteristics, viewpoints, and needs of the ultimate population-at-risk (P.A.R.), as well as reflect a thorough understanding of the care delivery system, the content of care to meet the P.A.R. needs, the training process and the training institutions, and the practitioners and their views.

It must focus on the specific area that is the primary evaluative goal: training programs. This includes technical training of high competence, understanding the patient's complex needs, and the manner of the training needed to do this.

It must show how these elements interrelate. It should therefore contain the elements of a process model as Weiss (1972) describes it, a model that "looks for and directs attention to the essential tracking of the program."

It should refer to some type of baseline, or reference point, the time line for the attainment of goals, and mechanisms by which change or goal attainment can be measured. In this way the concepts, goals, and evaluative outcomes are tied to the methods of the study.

It must take into account the consumers of the evaluation study results. An evaluation study must be sensitive, in an objective and constructive manner, to each constituent of its potentially diverse audience. This audience may comprise anyone from individual practitioners and training institutions to the Federal program administrators, including policymakers and program monitors as well as methods and budget analysts. Each member of this audience will have its own set of questions to be answered.

In order to evaluate these programs, a conceptual model was required that specified both the scope and the form of the evaluation, as well as which aspects of the problem would be empirically investigated. To this end several levels of outcome goals related to the dimension of time were specified:

Short-term: to stimulate ongoing training programs of high technical accomplishment concerning all elements that bear on the treatment of handicapped children.

Intermediate: graduates of these programs will apply training in settings that will influence the patterns of dental care for handicapped children, and provide appropriate care to these children.

Long-term: these programs and their graduates will contribute to an improved level of dental care to handicapped children, and, ultimately, their dental health status.

These are rather different levels of the outcome of the training process.

The above remarks carry an implicit need to consider a hierarchical approach to evaluation. In the pedodontic training programs, we are proceeding from the general needs of the handicapped through specialized dental training to meet these needs, to the practice of the graduates in the general care system. This in effect calls for a mixed strategy in which we will apply two general approaches and one subject-specific component:

- 1) Systems approach: to examine the flow or components of the dental care and learning process. This approach refers to the constraints that are placed upon the evaluation in operation.
- 2) A dental care or community model: this emphasizes the relation of the program to the handicapped child and the larger medical care and community factors that have impact on the child's needs.
- 3) The specialized training component: enlargement and education model to focus on the immediate program goal. This subcomponent is the expansion of the selection, training, and learning experience

of the pedodontic graduate student. It refers to the educational structure and the institutional arrangements and environment.

The latter component is the specialized subset related to the primary evaluative goal. An evaluative study that examined, say, the organizational setting of care for handicapped children, or a community care delivery system, would call for a different specialized model. However, the two general components would remain consistent with the input-output model and the community care concept model. The components will now be discussed in more detail.

1) Systems Approach:

The systems model of evaluation stresses the interacting aspects of a program or organization. For example, Grundy and Reinke (1973) characterize the systems approach as the study of various components of the program as interacting elements of it. This approach emphasizes that programs are complex social situations in which numerous events and conditions occur simultaneously (Schulberg, Sheldon, and Baker, 1969). Researchers have to decide which factors in the total situation are associated with the outcomes. All variables are considered as dependent or reciprocal and appropriate techniques for this model include multivariate analysis and path analysis.

The "process model" of Weiss (1972) is a modification of the systems model. She writes that the model:

diagrams the expected channels of change. It makes clear what intermediate effects evaluation has to look for and directs attention to the essential tracking of the program input along its putative path. It allows a test of theoretical linkages and enables the evaluator to say useful things about the stage where things go awry.

The systems model can also provide feedback by which the effects of program actions are compared with desired performance (Schulberg and Baker, 1968). Cumming and Cumming (1957) and Baker (1969) used this model in their research. The latter viewed a hospital as an open system "exchanging inputs and outputs with its environment so that evaluation and program modification could be improved."

Due to the complexities of the systems model and the lack of empirical research using it, Weiss (1972) thinks that for the time being most evaluators will use the goal attainment model, although they will take into account organizations and community systems affecting the program.

2) Community Model:

The community care approach stresses the program's components, its relationship to the community-based problem, and its effect on the population-at-risk. Some outcomes, such as survival and mortality, are easy to measure and the validity of outcomes as a dimension of quality is generally accepted. However, relevant indicators are not always chosen and some hoped-for outcomes are difficult to define and measure. The increasing amount of literature relating to health status and indices of health emphasizes the problems involved in assessing the impact of health services. Donabedian (1966) mentions other difficulties involved in the outcome approach. One is the time factor, as many effects take several years to appear: improvement of the health status of a population is a goal often aspired to, but it is impossible to forecast exactly when this should happen. Programs do not operate in a vacuum and factors external to the programs have to be considered in the evaluation of outcomes. In spite of the caveats, Donabedian states that outcomes by and large remain the ultimate measures of the effectiveness and quality of medical care. Indicators of the process of medical care include appropriateness, justification of diagnosis and therapy, coordination and continuity of care, and technical competence (Donabedian, 1966). Structure, as a focus of evaluation, refers to the setting in which the activity takes place. It involves the administrative processes, and evaluators study the facilities, equipment, staffing qualifications, and patterns.

The choice of relevant indicators, their measurement, and the difficulty of establishing any cause and effect relationships are problems to be faced by the "outcomes" researcher. The "process" approach entails assessment of the activity, and the chief obstacle to this is the difficulty of determining standards and criteria to be used. If structure is the focus, such variables as the goals and guidelines of the agency, the composition of the health advisory council, and the adequacy of financing would be of interest. The most important limitation of this approach is that the relationship between structure and outcomes has not usually been established.

3) Training Concepts and Training Programs:

A training program can be viewed as a basic input-process-output model, with five elements that interact to define the training program. These are:

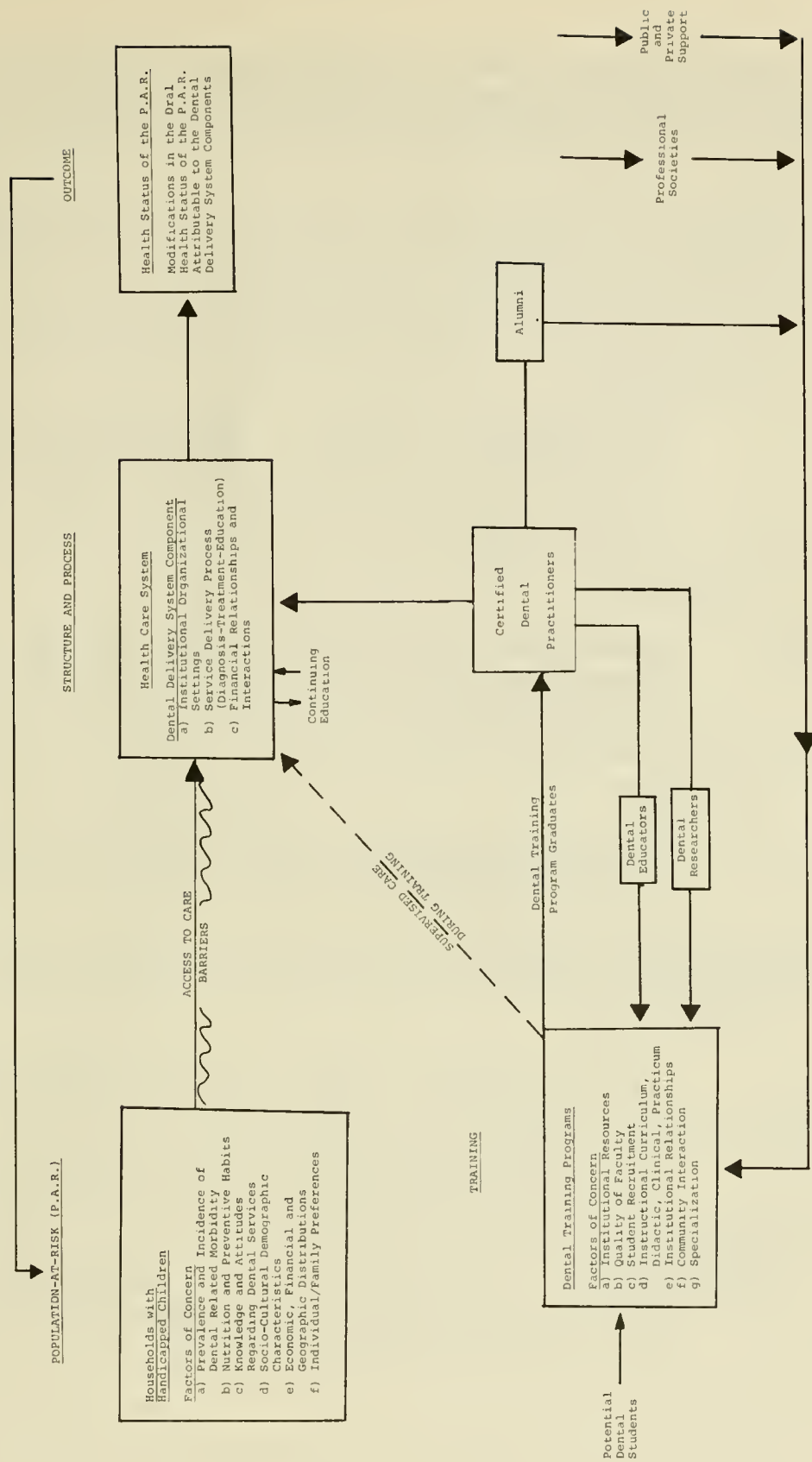
- a) Applicants and students: includes the selection process as well as the characteristics of those who become the students, and their work and attitudes.
- b) The institution: its history, goals, and various programs, as well as the role of the specific dental training program. This includes funding sources, affiliations, and related training sites.
- c) The faculty: their academic and professional credentials, responsibility, load, and their personal attributes and attitudes.
- d) The pedodontic program: the corpus of didactic, clinical, and "field" training. This includes accreditation and techniques, requisites, and the flow of the program.
- e) The graduates (and dropouts) of the training program: their subsequent professional careers, practice settings and characteristics, their attitudes, proficiency, and development.

By employing the systems approach, community care, and training models in one conceptual network we propose a mix of strategies in order to take a holistic view of Pedodontic Training Programs.

The flow diagram displayed in Figure 2 (page 21) is an attempt at detailing the mixed model approach advocated by the contractor in this evaluation contract. It shows the major actors, relationships, and processes which determine the boundaries of the system under investigation. It begins with the Target Population, households with handicapped children, in relation to Dental Practice and the possible impact on the dental health of these children. Training Programs are shown on a separate level, having a direct relationship to Dental Practice and a flow back from both Dental Practice and the associated Outcomes. The obvious link between Training Programs and Dental Practice is the program graduate who becomes a State certified dental practitioner. Alumni, both directly and through professional societies, give feedback

FIGURE 2

CONCEPTUAL MODEL OF DENTAL TRAINING RELATED TO DENTAL HEALTH CARE FOR THE HANDICAPPED CHILD



to and support the basic training program. Other types of training program support, both public and private, tend to emanate from the community-based problem but also tend to advocate desired outcomes.

Within the context of this overall system, the following components are specified as a guide to an understanding of the contract activities.

1) The Handicapped Child in Relation to His Needs

Short-term:

The potential patient: a child with one or more handicapping conditions. What are the current levels of each problem (prevalence and incidence) in the community and the related dental health needs?

Intermediate:

How do the dental needs of a handicapped child compare with those of a "normal" child? What barriers exist to prevent the satisfaction of this need (e.g., lack of knowledge, fear)?

Long-term:

What are the changes in the dental health status of the handicapped P.A.R.? What are the determinants (causes) of these changes?

2) Delivery of Health Care to the Target Population

Short-term:

To what degree is care accessible to the patient or his guardian? What are the existing organizational barriers to care (e.g., hours, location)?

How is the care process organized, and what influence does the organization have on access to care?

Intermediate:

How is the care process financed? What are the cost considerations over time?

Have there been changes in the treatment process over time that have been especially geared to the handicapped child (e.g., less use of the operating room for dental treatment)?

Long-term:

What is the impact of the care process, including not only the dental practitioner but the entire set of resources used in the care process, on the health status of the P.A.R.?

3) The Training of Pedodontic Manpower in Relation to Handicapped Children

Short-term:

What is the curriculum experience of the dentist? This includes the specific components of didactic, practicum, and field experience.

What are the key concepts that are thought to form the basis of the specialized care to the handicapped child (such as multi-disciplinary approaches)?

What are the characteristics of students who decide to specialize in pedodontics? How were they accepted into the programs?

What are the types of student exposure to handicapped problems during the training process?

What are the impressions, attitudes, and knowledge of students regarding the treatment of handicapped children during their training?

Intermediate:

What are the impressions, attitudes, and knowledge of graduates regarding the treatment of handicapped children after their training?

What continuing education program do the graduates take part in? What professional associations do they join, and what professional guidelines must they comply with overtime?

Long-term:

What research is done by graduates of the pedodontic programs and what is its impact on the dental health status of the P.A.R.? What research is produced by the training program itself, and is it incorporated into the training process?

4) Dental Practitioners and Program Graduates

Short-term:

What are the characteristics of the practitioner and his practice?

Intermediate:

What kind of caseload and what conditions of handicapped children does the practitioner encounter?

What is the experience and attitude of the practitioner with respect to the care of handicapped patients?

How are the concepts of community care and multidisciplinary approach used or not used in providing these dental services?

What is the attitude of the practitioner with respect to his training and current practice in the treatment of handicapped children?

Long-term:

What is the impact of the practitioner on the dental health status of the target population and on sensitivity to the long-term needs of handicapped patients?

1.5 SUMMARY OF GENERAL EVALUATION APPROACH

From both methodological and substantive viewpoints, an ideal evaluative study should contain the following elements:

- 1) Comparative Design - This element is extremely important in evaluative work. The issue of unknown and/or uncontrolled variables is a potential problem in empirical studies. Utilization of a comparative approach does not eliminate this problem, but with well chosen comparative observations, the adverse effects of ignorance can be minimized.
- 2) Prospective Study Approach - This element allows for the maximum flexibility in terms of experimental manipulation of variables and quality of measurement techniques. It also allows for sensitivity to long-term outcomes of a program. Although we view it as the ideal approach, its application to social policy evaluation has been limited. In practice, a combination of retrospective and cross-sectional investigations may be the best available approaches.
- 3) Inclusion of All Major Substantive Components - In the ideal application, each of the major components of a problem area would be operationalized. Referring back to Figure 1 (page 11) each of the major components would be specified, questions posed, objectives defined, variables measured, interactions noted and inferences drawn relative to each component and the overall study objectives.

1.6 STUDY DESIGN FOR EVALUATION OF PEDODONTIC TRAINING PROGRAMS

A general approach should include an operational component for each part of the framework. Justification should be required for the exclusion of any component. This justification should help both the evaluator, in terms of precision of arguments (evaluation logic) and conscious trade-offs between components, and the consumer of the evaluation results, in terms of understanding the limitations of the study. With this in mind, we shall a) specify criteria for considering the feasibility and utility of operationalizing each component, b) list those components of the conceptual framework which have been operationalized in this application, and c) list additional considerations involved in the above decisions.

1) Criteria For Evaluating Whether to Include a Substantive Component in the Operational Study Design:

a) Methodological Feasibility

- i) Potential application of a study design that allows for a comparative approach
- ii) Availability of existing objective data of direct relevance to the component
- iii) Potential for collecting original objective data augmented by subjective data where appropriate
- iv) Comparability of data gathering among observations
- v) Consideration of time dimension and its constraints on design (retrospective, cross-sectional, prospective)

b) Program and Policy Utility

- i) Sensitivity to direct program under review
- ii) Relevance to overall federal policy
- iii) Time line relative to achievement of policy objective

c) Resource Limitations

- i) Available manpower and existing knowledge
- ii) Time scheduling of activities, required interaction between activities, and administrative constraints.

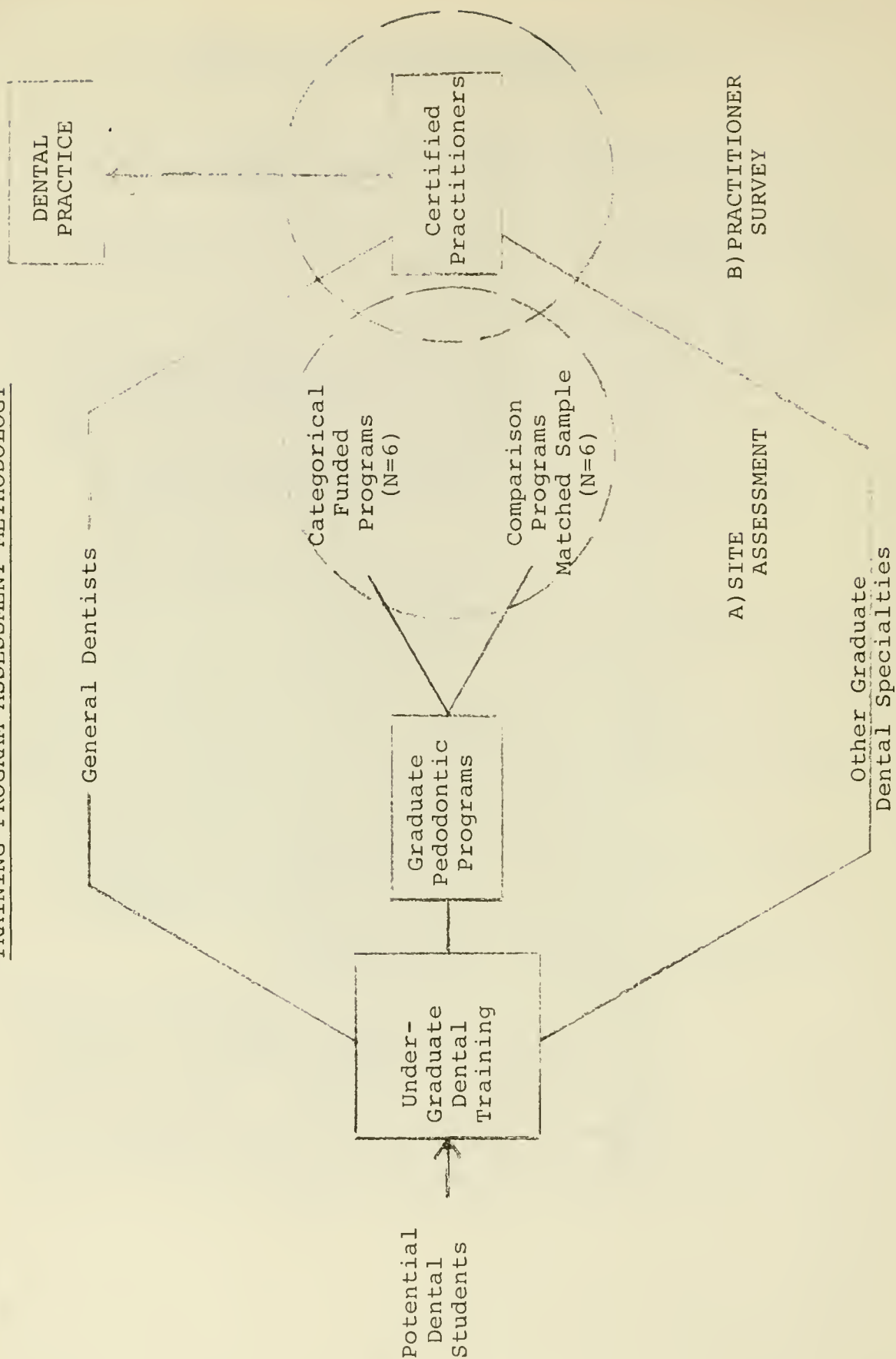
These criteria are not listed in order of importance, nor are they necessarily independent.

2) Components Operationalized

- a) Component 3, The Training of Pedodontic Manpower in Relation to Handicapped Children, was investigated via a comparative study of graduate pedodontic training programs. The basic structure of the comparative design, categorically funded programs versus non-funded programs, is depicted in Figure 3 (page 28) and is denoted as Task A) Site Assessment. This phase of the evaluation study included original data collection from each of the funded and comparison programs. The data collection approach was based on a retrospective and current time line and was sensitive to the goals of the direct BCHS grant program being investigated. Site visits were made to each program and structured pretested instruments were used to collect both objective and subjective data. The outcomes were limited to the short-term and intermediate levels. The long-term goal would have required a prospective approach, considerable more time than the two years devoted to this study, and more resources, but probably would not have been any more relevant for policy purposes.
- b) Component 4, The Dental Practitioner and Program Graduates, was investigated via a comparative dental practitioner survey. The basic structure of this component of the investigation is depicted in Figure 3 (page 28) and is denoted as Task B) Practitioner Survey. This phase of the evaluation study included original data collection from dental practitioners.

FIGURE 3

TRAINING PROGRAM ASSESSMENT METHODOLOGY



The universe of graduates from the pedodontic training programs included in the Site Assessment phase of the study were included in the survey, as well as all other practicing pedodontists, a sample of general dentists, and a sample of other dental specialists.

The data collection approach was based on a retrospective and current time line and was sensitive to the goals of the direct BCHS grant program being investigated. A mail survey technique with a pretested questionnaire was employed. An original and two follow-up mailings were undertaken, along with a telephone check of nonrespondents for bias check. Once again, the long-term goal, the impact of the dental practitioner on the dental health status of the P.A.R., was not investigated because it would have required extensive clinical trials, and did not have immediate policy utility, and because of the large amount of additional resources that would have been required for clinical trials.

3) Additional Considerations

- a) Component 1, The Handicapped Child in Relation to His Needs, was not investigated beyond a preliminary level for three reasons.
 - i) A review of the literature dealing with the epidemiology of handicapping conditions was unsuccessful in establishing a baseline estimate of either the prevalence or incidence of the various handicapping conditions. Those data that we were able to locate were of uncertain reliability and incapable of being generalized to national estimates.
 - ii) Original data collection on the prevalence or incidence of the various handicapping conditions would have required major tradeoffs with other aspects of the study. Since the long-term outcome (change in dental health status of the P.A.R.) of this component is one concern of this study, giving up resources from

the other components for investigating the short-term aspects of this component seemed inappropriate and was not done.

- iii) Although this component is clearly a key to federal policy initiatives in this area, it is not directly sensitive to the grant program under review. The training grant mechanism is geared toward the student, the future practitioner, and his future attitudes and behavior to the handicapped. From a much larger policy perspective, it is an extremely important question to ask about the relative per dollar impact of (a) a training grant program, and (b) a financing program (or desired outcome), on the long-term policy objective of increasing the dental health status of the handicapped population. Perhaps a mix of programs would be the most effective means of achieving the desired outcomes. This question was not posed in this study.
- b) Component 2, Delivery of Health Care to the Target Population, was not investigated in this study. Reasons (ii) and (iii) above apply equally as to why this component was not operationalized.
- c) The study investigated how a small increase in resources would be used and concluded that:
 - i) Practitioner Survey - attempt to increase response rates with additional follow-up by mail and telephone. Bias check on reliability of responses on a small sub-sample of respondents.
 - ii) Site Assessment - more follow-up procedures relative to instruments and response rates.
- d) The study investigated a large increase in resources. (These were in addition to c) i) and c) ii).)
 - i) Practitioner Survey - construction of a more adequate sample frame; combination of mail survey and personal interview technique.

- ii) Site Assessment - included more university-based comparison programs; more concern with long-term outputs such as research regarding handicapped; qualitative assessment of student clinical ability; better on caseload and mix by student.
 - iii) Population-At-Risk - investigation of at least the short-term and intermediate objectives.
 - iv) Delivery System - investigation into the organization, delivery, and financing of care at least on a case-study basis (e.g., Los Angeles Metropolitan Area).
- e) The study investigated a small decrease in resources and concluded it would have these effects:
 - i) Practitioner Survey - elimination of other dental specialist comparison group; shorter questionnaire; smaller sample of general practitioners.
 - ii) Site Assessment - shorter instruments eliminating several sections of marginal utility (unfortunately, which have low utility a priori is not always clear).
- f) These are, in addition to the above, some ways a large decrease in resources would affect the activities.
 - i) Practitioner Survey - elimination of the general practitioner comparison group.
 - ii) Site Assessment - elimination of the hospital-based comparison programs; one-day, one-person site visits (which may adversely affect the information collected).

CHAPTER 2. SITE ASSESSMENT

2.1 INTRODUCTION

In 1967, McConnell completed a survey of the educational exposure of undergraduate and graduate dental students to the treatment of handicapped patients in the United States and Canada. His assessment of undergraduate exposure was based on at least one to three hours of lecture or clinical observation available in the junior or senior years. Thirty-eight dental schools provided none. The reasons cited for the deficient teaching of dental treatment for handicapped patients were inadequate clinical space, lack of curricular time, and scarcity of experienced teaching personnel. Three schools had an honors program for interested senior students. McConnell concluded that approximately 4,000 dentists graduate per year inadequately trained in providing such treatment. He concluded that the problem had become one of educating the general practitioner who may become interested in treating handicapped patients largely from the demands in his community.

McConnell also surveyed the 54 schools of dentistry to ascertain where a dentist might obtain training in the treatment of handicapped patients. He found, in 1967, that only 12 of these schools offered a short-term postgraduate course to train dentists for the management of handicapped patients. Only three or four of these 12 schools provided training in such courses regularly. The lack of experienced staff, money, and time seemed to be the limiting factors. About one-half of all dental schools (28), however, did offer graduate programs in pedodontics, in which the treatment of handicapped children was included.

The federal maternal and child health program has supported postgraduate pedodontic training, in one form or another, since 1947. Its current categorical program has had a policy emphasis on graduate pedodontic training since 1967. Those programs that are supported are supposed to expose students, explicitly and systematically, to the dental treatment of handicapped children. The federal program, funded under Title V of the Social Security Act, supported six graduate pedodontic training programs in 1975 via training grants. All six were academic based programs, institutionally within dental schools. The six pedodontic programs were at:

- a. University of Michigan, Ann Arbor
- b. University of Alabama, Birmingham
- c. Baylor University, Dallas
- d. University of Southern California, Los Angeles
- e. University of Tennessee, Memphis
- f. University of Iowa, Iowa City

As can be seen in Table 1 (page 35), between fiscal year 1967 and fiscal year 1975, \$3.3 million was devoted to this training grant program. The number of schools supported by the maternal and child health program increased from three in 1967 to six in 1970 and has since remained at six. The number of trainees at supported programs has also increased from 10 per year in 1967 to 26 per year in 1975.

The six designated pedodontic training programs that are currently funded by BCHS have a clearly defined objective: to improve the training of pedodontic students in the delivery of specialized care that is required to meet the dental needs of handicapped children. The eventual impact, the longer term goal, is to better meet the dental needs of handicapped children. In order to evaluate these programs, a conceptual model was required that specified both the scope and form of the evaluation, as well as which aspects of the problem would be empirically investigated. To this end several levels of outcome goals, related to the dimension of time, were specified:

Short-term: to stimulate ongoing training of high technical accomplishment concerning all elements that bear on the treatment of handicapped children.

Intermediate: graduates of these programs will apply training in settings that will influence the patterns of dental care for handicapped children, and provide appropriate care to these children.

Long-term: these programs and their graduates will contribute to an improved level of dental care to handicapped children and, ultimately, their dental health status.

The six funded pedodontic training programs have as their goal (implicit or explicit) influencing the three training outcomes mentioned above. The short-term goal is to provide training that will:

Table 1

PEDODONTIC TRAINING SUPPORTED BY BCHS

| Fiscal Year | # of Programs | Amount | # of Trainees |
|----------------|---------------|-----------|---------------|
| 1967 | 3 | 162,632 | 10 |
| 1968 | 4 | 222,929 | 16 |
| 1969 | 5 | 280,635 | 19 |
| 1970 | 6 | 382,878 | 21 |
| 1971 | 6 | 462,816 | 23 |
| 1972 | 6 | 428,834 | 24 |
| 1973 | 6 | 452,926 | 26 |
| 1974 | 6 | 456,260 | 26 |
| 1975 | 6 | 462,093 | 26 |
| Total | - | 3,312,003 | 191 |

- 1) increase the practitioner's knowledge of handicapped children (cognitive domain),
- 2) create favorable attitudes toward their care (affective domain), and
- 3) elicit appropriate clinical and resource management (technical skills and psychomotor domain).

The prime intermediate and long-term goal, which is seldom examined empirically, is that, if the program brings about these desired cognitive, affective, and technical skill changes, the health status of the target population will be enhanced. The assessment of the impact upon the handicapped child population, the long-term goal, is beyond the scope of this project. For the purposes of this activity, it is assumed that unless a training program is effective in the short run, the eventual health impact it engenders will be minimal.

One major task of this evaluation study was to determine the adequacy of the programs preparing the pedodontic clinicians. This task was accomplished via a detailed comparative study of the six funded programs. This chapter contains the specifications of this comparative study design, the instruments utilized, and the substantive findings.

The second major task was to explore the intermediate goal through the subsequent experience of the graduates of these training programs. This task was accomplished via a comparative study of the graduates of the six funded programs. Chapter 4 contains the procedures employed for this component, as well as the substantive findings. These findings are limited to pedodontic practitioners, with emphasis on the type of training program. In addition, Chapter 3 contains the larger report on this task, the Practitioner Survey.

2.2 DESIGN OF SITE ASSESSMENT

As specified in Chapter 1, in order to evaluate these training programs a comparative approach was taken. This approach was taken for two reasons:

- 1) given the small number of programs (six) and the large number of factors which potentially influence the observed outcomes, only a subset of which are measured, a control group is a standard technique for attempting to equalize these unknown effects across observations, and
- 2) evaluative and policy research efforts like this one should result in knowledge regarding the consequences of certain actions, in this case policies which may be subject to change. In order to make these inferences within an evaluative context, it is necessary to go beyond a simple descriptive approach. Yet, given the real world constraints of a retrospective investigation and limited resources, a quasi-experimental study was not feasible.

The comparative study approach taken here, actually a cross-sectional study with retrospective features, is based upon this rationale.

2.2.1 Selection of Comparison Programs

The approach taken in the selection of the control programs was to look at the universe of graduate pedodontic programs in terms of readily available information, compare the six funded programs to this universe for sensitivity to differences, and choose six comparison programs while controlling for as many of those differences as possible.

According to the A.D.A. Council on Dental Education, in 1974 there were 39 pedodontic training programs within U.S. dental schools, including one in Puerto Rico, and 19 programs within non-dental school institutions, primarily hospital-based. Twenty-nine of the 39 (74.4 percent) academic-based programs were fully accredited by the A.D.A. Council on Dental Education, as compared to 16 of the 19 (84.2 percent) hospital-based programs.

Based on the above data, the first decision made was to choose three university-based and three hospital-based comparison programs. The rationale for including both university and hospital programs in the comparison group was straightforward. Since both types of programs train pedodontists, a more realistic comparison would be afforded by including both in the comparison group. This choice also allows for institutional - organizational comparisons. University-based comparison programs were selected to match as closely as possible the six funded programs in relation to four factors: (1) length of training program (all are two-year training programs), (2) geographic location, (3) enrollment, and (4) number of certificates and degrees awarded. The source of this information was the Advanced Dental Education Annual Report, 1973/1974, published by the American Dental Association. Five university-based programs were selected, three primary and two alternate. The provision of alternates was deemed necessary should one or more of the comparison programs decline to participate in the study. These programs were:

Primary: 1. University of California at Los Angeles
 2. University of North Carolina
 3. University of Nebraska

Alternate: 1. University of Indiana
 2. University of Missouri

Hospital-based programs were more difficult to select. There were only 19 hospital-based pedodontic training programs in the United States in 1974, and the majority of these were located in the North and East. However, using the same four criteria employed in the selection of university programs, it was possible to select three primary and two alternate hospital programs. These programs were:

Primary: 1. Children's Hospital Medical Center
 Oakland, California
 2. Eastman Dental Center
 Rochester, New York
 3. Children's Hospital
 National Medical Center
 Washington, D.C.

Alternate: 1. Children's Hospital
 Pittsburgh, Pennsylvania
 2. Milwaukee Children's Hospital
 Milwaukee, Wisconsin

In order to determine how well this matching had worked, data were compiled that compared the universe of graduate pedodontic programs to the six funded and six comparison programs by various factors. As can be seen in Table 2 on page 40, the six funded programs had a capacity of 60 students in 1973-74 and an enrollment of 51 (8.5 students per program), the three university-based comparison programs had a capacity of 24 students and an enrollment of 23 (7.7 students per program), and the hospital-based comparison programs had a capacity of 22 students and an enrollment of 22 (7.3 students per program). The average number of students enrolled per program in 1973-74 was 6.5 for all academic-based programs and 4.5 for all hospital-based programs. It appears that the matching procedure cut down on some of the difference in the size of the program. However, a clear difference still existed between the funded programs and the comparison programs with regard to the type of degree received by the graduates. As can be seen in the last two rows of Table 2, most (60 percent) of the graduates from the funded programs received a master's degree while all (100 percent) of the graduates from the hospital-based programs received a certificate. The funded programs were also found to be larger than most academic-based programs and slightly larger than either of the comparison type programs. This was true whether measured in terms of number of students enrolled or number of graduates.

In sum, the matching procedure appears to have been fairly successful, given the initial size distribution of the funded programs compared to the universe of pedodontic programs. Whether measured in terms of enrollment or graduates, the comparison programs are much closer to the funded programs than the universe of programs.

Table 2

CAPACITY, ENROLLMENT AND GRADUATES OF PEDODONTIC GRADUATE PROGRAMS

| | | All Pedodontic Programs | | Pedodontic Programs Involved in Site Assessment | | |
|------------------------|-------------|-------------------------|-----------------------------|---|----------------------|--------------------|
| | | Academic Based (39) | Nondental School Based (19) | Funded Programs (6) | University Based (3) | Hospital Based (3) |
| 1973 - 1974 Capacity | 1st Year | 160 | 44 | 29 | 12 | 11 |
| | 2nd Year | 159 | 46 | 31 | 12 | 11 |
| | 3rd Year | 4 | - | - | - | - |
| 1973 - 1974 Enrollment | 1st Year | 129 | 42 | 26 | 14 | 10 |
| | 2nd Year | 122 | 43 | 25 | 9 | 12 |
| | 3rd Year | 4 | - | - | - | - |
| 1972 - 1973 Graduates | Degree | 44 | - | 18 | 7 | - |
| | Certificate | 83 | 52 | 12 | 6 | 12 |

(Source: Annual Report 1973/74, Advanced Dental Education, Copyright 1974 by American Dental Association.)

2.3 DEVELOPMENT OF INSTRUMENTS, SPECIFICATION OF PROCEDURES, AND RESPONSE PATTERNS

2.3.1 Instrument Development and Procedures

Five data collection instruments were developed for purposes of assessing pedodontic training programs. They were:

- Item 1) Basic Program Data and Director Input
 - I. Administration
 - II. Pedodontic Training Program Goals and Relationships with Other Programs
 - III. Dental Faculty Related to Pedodontic Program
 - IV. Pedodontic Students
 - V. Pedodontic Training Program Curriculum
 - VI. Equipment and Facilities
- Item 2) Site Visit Questionnaire
 - I. Administration
 - II. Pedodontic Training Program Goals and Relationships with Other Programs
 - III. Dental Faculty Related to Pedodontic Program
 - IV. Pedodontic Students
 - V. Pedodontic Training Program Curriculum
 - VI. Equipment and Facilities
- Item 3) Affiliated Institution Program Data
 - I. Administration
 - II. Faculty/Staff
 - III. Training Experience for Students
 - IV. Patient Population and Dental Treatment
 - V. Equipment and Facilities
- Item 4) Faculty Profile and Questionnaire
 - I. Personal Profile
 - II. Faculty Activities and Responsibilities
 - III. Assessment of Training Program
- Item 5) Student Profile and Questionnaire
 - I. Personal Profile
 - II. Dental Training
 - III. Assessment of Training Program

Staff members of the Council on Dental Education (A.D.A.) provided valuable assistance. They provided the basic documents that are used in their accreditation site visits. Those documents focus on some of the issues of interest in this project, and were used as a point of departure for the instruments that the contractor developed.

Under the terms of this contract, the contractor, with the assistance of BCHS staff, assembled an Advisory Panel of experts in the fields of pedodontics and mental retardation. Using suggestions by the Advisory Panel and consultants, and after reviewing documents used in previous studies, a preliminary version of the five instruments was constructed and sent to members of the Division of Monitoring and Analysis (BCHS) for their initial review. After additional modifications, these data collection instruments were pretested in two sites. The first was held at Emory University in Atlanta, Georgia, on May 15 and 16, 1975. The second was held at Boston University in Boston, Massachusetts, on June 10 and 11, 1975. Both of these visits proved useful in terms of modifying the data collection instruments and verifying that it is feasible to accomplish the task in two days. As an illustration of the type of detailed data collected, the final version of Item 1 is contained within Appendix A.

2.3.2 Site Assessment Procedures

A site visit was made to each of the 12 selected training programs. Each site visit was scheduled for two days. The first day was spent collecting information at the school teaching facility and the second day visiting each of the affiliated institutions for the handicapped. Each site visit was preceded by a letter to the program director informing him of the study objectives, the need for his cooperation, the confidentiality of the process, and the voluntary nature of his participation. This letter was followed by a personal telephone contact. If the director agreed to participate, mutually agreeable dates were set up for the site visits. (All 12 primary programs agreed to participate in the study.) Each site visit was conducted by a senior project staff member and a consultant pedodontist. They met with program directors, faculty and students, and supervisors of field training sites. (To facilitate the site visits, and hopefully to create a more favorable response, the endorsement of the American Association of Dental Schools (A.A.D.S.) was obtained.)

As previously stated, five data collection instruments are included in the site assessment protocol. A description of the procedures related to each follows:

1) Basic Program Data and Director Input

This item was mailed to the program director 30 to 45 days before the actual site visit. He filled it out and returned the completed copy to the contractor 7 to 14 days before the visit. Copies of these completed questionnaires were available to the site visit team prior to the site visit for their review.

2) Site Visit Questionnaire

This item parallels Item 1 and is the instrument used by the site visitors to make sure Item 1 was complete, as well as to obtain some additional information.

3) Affiliated Institution Program Data

This instrument was administered to each of the affiliated institutions that cares for handicapped children. Item 3 was mailed ahead to the dental director at each of the affiliated institutions, via the pedodontic training program director. A letter was sent to each of these dental directors informing him of the study objectives, the need for his cooperation, the confidentiality of the process and the voluntary nature of his participation. A completed copy of Item 3 was returned to the contractor prior to the site visit, the same as Item 1. Copies of the completed questionnaire were available to the site visitors prior to the site visit for their review and notes. During the actual site visit, approximately one-half day was spent at each affiliated institution reviewing the responses to Item 3 questions and checking reliability of the quantitative responses.

4) Faculty Profile and Questionnaire

This instrument was distributed to those faculty members who were directly involved in the pedodontic training program. An attempt was made to distribute the questionnaire personally during the first day of the site visit to those faculty members available. For those members not available, the instrument was given to their secretaries or the program director for later distribution. A cover letter to each faculty member and a self-addressed stamped envelope were distributed along with the questionnaire. The cover letter informed each faculty member of the study objectives, the need for his cooperation, the confidentiality of the process and the voluntary nature of his participation. Completed copies of Item 4 were to be returned to the contractor in the self-addressed stamped envelope provided.

5) Student Profile and Questionnaire

This instrument was distributed to those students currently enrolled in the pedodontic training program. An attempt was made to distribute the questionnaire personally during the first day of the site visit to those students available. For those students not available, the instrument was given to the program director for later distribution. A cover letter to each student and a self-addressed stamped envelope were distributed along with the questionnaire. The cover letter informed each student of the study objectives, the need for his cooperation, the confidentiality of the process and the voluntary nature of his participation. Completed copies of Item 5 were to be returned to the contractor in a self-addressed stamped envelope.

The direct-observer site visit is a classic and valuable tool to evaluate health manpower training programs. This standard procedure was followed, with two distinct differences from the usual pattern:

- a. the focus was on concepts, training components, and specific curricula for the purpose of collectively evaluating the education and training process, and
- b. the site visit instruments were highly structured in order to gather comparable and specific data and to insure that the areas of inquiry were extensively covered.

2.3.3 Response Patterns

1) Initial cooperation:

Positive: all sites cooperated willingly. Site visit schedules were worked out to be mutually agreeable without any appreciable difficulty or inconvenience. One comparison site (director) did ask to be withdrawn from the study, but agreed to remain in the study.

2) Site visit conduct:

Positive: each site was visited for two days by a team of one consultant pedodontist and one member of the contractor's staff, and occasionally the project officer or his consultant. Cooperation, attendance, and participation were forthcoming from director, faculty, students, and affiliated sites. As can be seen in

Table 3 on page 46, Items 1 and 2 were completed for all twelve programs, although one program had major sections incomplete even after the site visit.

Difficulties were encountered in:

- a. attempting to collect detailed financial data, which was either unavailable or difficult to get, especially in the nine academic-based programs. This was not obfuscation; the resources are so intertwined between programs that this data is often not available, and explicit departmental budgets are nonexistent.
- b. visiting all affiliated sites in some cases where the number of named affiliated sites was greater than two. This difficulty was encountered in four site visits.

3) Post-site visit questionnaires:

Positive but limited: At the beginning of the site visit, two sets of questionnaires were distributed, one to the faculty and one to the students. The distribution was undertaken at this time in order to have a rapport established and to thereby ameliorate any anxiety and presumably maximize response rates. The questionnaire results, it was emphasized, were confidential, and the information forthcoming would be kept anonymous. As can be seen in Table 3, the response rate was consistently higher for faculty than for students, with the hospital-based program response rates lowest. A second mailing to nonrespondents was not undertaken, both for cost purposes and because, if an initial personal approach was unsuccessful, an impersonal follow-up would most likely do no better.

4) Post-site visit follow-up of information:

Positive: In some special cases which arose during the site visit process, additional information was obtained, usually initially missing data or answers to questions that were not clear to the director. The cooperation was good on this follow-up.

Table 3

RESPONSE PATTERNS BY ITEM NUMBER
AND COMPARATIVE DESIGN

| | <u>Funded Programs</u> | <u>Comparison Programs</u> | |
|---|------------------------|----------------------------|-------------------|
| | | University based | Hospital based |
| | (6) | (3) | (3) |
| Item 1 & Item 2 (Basic Program Data) | 6/6 = 100.0% | 3/3 = 100.0% | *3/3 = 100.0% |
| Item 3 (Affiliated Institutions) | 13/14 = 92.8% | 8/8 = 100.0% | 4/5 = 80.0% |
| Item 4 (Faculty Questionnaire) | 39/55 = 70.9% | 23/30 = 80.0% | 11/17 = 64.6% |
| Item 5 (Student Questionnaire) | 29/45 = 64.4% | 13/19 = 68.4% | 10/23 = 43.5% |

*Although all three of the hospital based programs cooperated in the study, only one program submitted instruments which had major sections incomplete. Subsequent follow up was unsuccessful in completing the instruments.

5) Clinic data:

Fair to Poor: Logs were to be provided concerning the type and treatment of handicapped children during a particular reference period. In many cases (9 out of 12) adequate data was not furnished, because adequate record keeping systems did not exist or were not readily available. The impression received was that programs did not explicitly monitor the type or kind of handicapped children seen in toto, nor how they were distributed among the students.

6) Logistics

Positive: The site visit teams were able to perform their tasks. Difficulties with reservations and scheduling were not insurmountable. Consultants, both pedodontists and contractor staff, were rotated in terms of the comparative design, with a consultant usually making two site visits each. This was generally adequate. The consultants seemed to follow the format without discomfort. Prior briefing and post-site visit sessions were used to handle any particular circumstances that arose. The one caveat was that the consultant pedodontist at times spent time explaining a technical point to the companion staff member--in a way acting as an ombudsman to the program director.

2.4 SUBSTANTIVE RESULTS OF SITE ASSESSMENT

The presentation of results in this section is centered around general issues, with data presented from each of the Items as appropriate. These results are organized into three categories: those pertaining to the structure of the programs, those pertaining to the process of the programs, and those pertaining to the outcome of the programs. The emphasis of the data presented here is on those factors that vary significantly according to the comparative design.

2.4.1 Structure

1) Accreditation

All 12 schools operated within the guidelines for A.D.A. accreditation and therefore met the expectations in major categories. As can be seen below, all 12 programs had approved A.D.A. programs.

Table 4

DATE AND TYPE OF LAST PROGRAM ACCREDITATION REVIEW BY COUNCIL ON DENTAL EDUCATION

All Programs Have A.D.A. Approval Status

| Time of Last Accreditation | <u>Funded Programs</u> | <u>Comparison Programs</u> | |
|-------------------------------|------------------------|----------------------------|-------------------|
| | | University Based | Hospital Based |
| | (6) | (3) | (3) |
| 1970 or before | 1 | 1 | 1 |
| 1971 to 1972 | 3 | 1 | 2 |
| 1973 to 1975 | 2 | 1 | - |

2) Physical Facilities

Half of the funded program directors felt that the physical plant used for the clinical program was adequate for pedodontic training. By contrast, all of the directors of the university-based programs felt that clinic facilities were adequate, compared to none of the hospital program directors. The director of one of the funded programs felt a critical need for an X-ray unit and a panorex. A second director felt that his facility could be improved by the addition of a recovery room and a small isolation room. Several program directors desired facilities for using nitrous oxide. The most general complaint was that facilities were either too small or marginal, limiting program expansion.

3) Library

Four of the funded programs reported that there was a special collection in the library dealing with topics related to handicapped children, compared to one of the university-based comparison programs and none of the hospital-based programs. All program directors felt that the library resources were easily accessible to students.

4) Faculty and Students

The average number of full-time equivalent (FTE) faculty in the pedodontic training program was 3.0 for the funded programs, 2.0 for the university-based comparison programs, and 2.2 for the hospital-based comparison programs. The range in faculty size for funded programs was from 2 to 5.4 FTE. As can be seen in Table 5, the average number of students was 7.5 for the funded programs, 6.3 for the university-based, and 7.7 for the hospital-based programs. As a result, the student/faculty ratio was much more favorable for the funded programs (2.5) than for the comparison programs (3.15, 3.5).

Forty-three percent of the faculty of the funded training programs reported that they were board-certified, compared to 30 percent of the university-based training program faculty and only nine percent of the hospital-based faculty.

Table 5

NUMBER OF FACULTY AND STUDENTS

| Faculty | Funded Programs (6) | Comparison Programs | |
|--|---------------------------|-----------------------------|---------------------------|
| | | University- based (3) | Hospital- based (3) |
| Total Number Listed | 65 | 30 | 17 |
| Number Full-time Only | 6 | - | 2 |
| Mean F.T.E. | 3.0 | 2.0 | 2.2 |
| Students | | | |
| Total Enrolled | 45 | 19 | 23 |
| Mean Number of Students Enrolled | 7.5 | 6.3 | 7.7 |
| Mean Student/Faculty Ratio | 2.5 | 3.15 | 3.5 |

There was little difference between the funded programs and the university-based programs in terms of faculty longevity; 39 percent of both faculties had been at the institutions less than five years, and another 30 percent or more had been there from 5 to 10 years. By contrast, 82 percent of the faculty of the hospital-based programs had been there less than five years.

Joint appointments were less common for faculty of the funded programs (34 percent) than for faculty of either the university-based (65 percent) or the hospital-based (45 percent) training programs.

Forty-six percent of the faculty of the funded training programs reported that they were full-time faculty members, as compared to 74 percent for the university-based programs and 36 percent for the hospital-based programs.

5) Affiliated Programs

Each of the 12 sites had programs affiliated with it, the number of which varied. Each of these affiliated programs was sent a questionnaire (Item 3) regarding various aspects of its programs (administration, faculty/staff, training experience for students, patient population and dental treatment, and equipment and facilities). Altogether there were 14 sites affiliated with the funded programs, of which 13 (or 93 percent) responded. There were eight sites affiliated with the university-based comparison programs and all (or 100 percent) responded. Four out of five (80 percent) sites affiliated with the hospital-based comparison programs responded.

These affiliated programs were asked whether or not they received funds from the pedodontic training program with which they were associated. Ninety-two percent of the sites affiliated with funded programs, 88 percent of the sites affiliated with university-based comparison programs, and 100 percent of the sites affiliated with hospital-based comparison programs reported that they did not receive funds from the pedodontic training program with which they were affiliated.

2.4.2 Process

1) Student Recruitment

The program directors were asked three questions about their recruitment activities. As shown in Table 6, most programs did not actively recruit students. However, half of the funded programs actively recruited students, including advertising the program in other dental schools. Only one of the programs advertised in a professional journal.

Table 6

ADVERTISEMENT AND RECRUITMENT

| Do You Actively Recruit Students into Your Pedodontic Program? | <u>Funded Programs</u> | <u>Comparison Programs</u> | |
|---|------------------------|----------------------------|--------------------------|
| | (6) | University Based (3) | Hospital Based (3) |
| Yes | 3 | 1 | 1 |
| No | 3 | 2 | 2 |
| Do You Advertise This Pedodontic Program in Other Dental Schools? | | | |
| Yes | 3 | - | 1 |
| No | 3 | 3 | 2 |
| Do You Advertise This Pedodontic Program in Various Professional Journals? | | | |
| Yes | 1 | - | - |
| No | 5 | 3 | 3 |

In order to see how students fit into the recruitment process, they were asked how they found out about the pedodontic program they were attending and why they chose it. Of the students who responded to how they found out about the program, a clear difference existed. As can be seen in Table 7, 43 percent of the students at the funded programs attended undergraduate dental school at the same school, 46 percent of the students at the university comparison programs did also, and, of course, none of the students of the hospital-based programs did so.

Table 7

SOURCE OF INFORMATION ABOUT TRAINING PROGRAM

| How Students Found Out About Program They Were Attending | <u>Funded Programs</u> | | <u>Comparison Programs</u> | | | |
|--|------------------------|--------|----------------------------|--------|-------------------|--------|
| | | | University Based | | Hospital Based | |
| | (6) | | (3) | | (3) | |
| | # | % | # | % | # | % |
| Personal Research | 2 | (7.1) | 1 | | 3 | (25.0) |
| Professional Reference | 6 | (21.4) | 4 | (30.8) | 3 | (25.0) |
| Knowledge of Programs and Facilities | 5 | (17.9) | - | | 1 | |
| A.D.A. | 3 | (10.7) | 1 | | 4 | (33.3) |
| Attended Undergraduate at Same School | 12 | (42.9) | 6 | (46.2) | 0 | |
| Other | - | | 1 | | 1 | |
| Total | 28 | | 13 | | 12 | |

The students were also asked what factors weighed most heavily in their choice of program (Table 8). The most frequent response for all three types of programs was "It was a good pedodontic program". The next most frequent response for the funded and university comparison programs was the quality of the faculty. This was not mentioned at all in the hospital comparison programs. Location was also a more frequent response in the funded programs than in either of the comparison groups. Since this is not easily subjected to policy manipulation by either programs or funding sources, location must be accepted as a given, even though students may clearly have a locational preference. Of more importance is the issue of finances. Although not mentioned very frequently, a difference in responses by comparative group did exist. Seventeen percent of the hospital program students mentioned financial reasons for their choice of program, and none of the university comparison program students. Overall, these figures may reflect a slight tradeoff between perceived "quality of program" and "finances".

Table 8

FACTORS WEIGHING IN DECISION TO ENROLL IN PROGRAM

| Factors Weighing in Decision to Enroll in Program | <u>Funded Programs</u> | | <u>Comparison Programs</u> | | | |
|---|------------------------|--------|----------------------------|--------|-------------------|--------|
| | | | University Based | | Hospital Based | |
| | (6) | | (3) | | (3) | |
| | # | % | # | % | # | % |
| Type of Program | 2 | | 2 | | 3 | (16.6) |
| Financial | 7 | (14.3) | 0 | | 3 | (16.6) |
| Location | 7 | (14.3) | 3 | (13.0) | 2 | (11.1) |
| Good Pedodontic Program | 14 | (28.6) | 8 | (34.8) | 4 | (22.2) |
| Clinical or Internship Part of Program | 5 | (10.2) | 2 | | 2 | (11.1) |
| Quality of Faculty | 10 | (20.4) | 7 | (30.4) | 0 | |
| All Others | 4 | | 1 | | 4 | (22.2) |
| Total | 49 | | 23 | | 18 | |

Includes equal weight for each reason given.

2) Faculty Recruitment

On the basis of the responses received from training program directors, there appears to be little variation in how pedodontic program faculty are recruited. The usual procedure involved advertising in various dental journals and through the pedodontic departments in dental schools, contacting colleagues at

other institutions, and personal contacts at dental meetings. The university-based training programs also utilized faculty search committees. Part-time and clinical faculty tended to be recruited on a more informal basis, primarily from the local community or region. Program directors generally reported that both training and experience were important criteria in faculty selection. However, the funded programs, being academically based, more often required an M.S. degree rather than certification in pedodontics, and looked for commitment to research and publications.

3) Enrollment Conditions

The program directors were asked if students were admitted on a part-time basis. Five out of six funded programs and two of the three university-based programs did not admit students on a part-time basis, while only one of the three hospital-based programs did not. Directors were also asked whether foreign students were admitted. Five out of six funded programs and all three of the university-based programs accepted foreign students, while only one of the three hospital-based programs did.

4) Maximum Number of Students

The program directors were asked how the program determined the maximum number of students that would be accepted into the program annually. The responses were highly varied. The verbatim responses are presented here. The variable X has been substituted for the number of students in each case, in order to prevent identification of the programs. An illustration of the responses follows:

Funded Programs

- a) Available faculty time and auxiliary personnel are the major constraint, facilities are adequate and not constrained.

Facilities and faculty are the limiting factors. Faculty more than facilities. Discussed the saturation point in the state of pedodontists. Auxiliaries are a factor.

b) Availability of space.

Space for 2X students; X students seems to be the maximum # for adequate supervision of master's thesis. There is no effort to recruit individuals who have an interest in research or academics. The primary purpose is to educate well-rounded pedodontists and in the process, educators and research-oriented individuals are produced.

c) Determined by: i) needs of the affiliated institutions, ii) availability of funds, iii) interest in providing dental care.

Determined by need of the institutions involved in the training program. Patient care needs, funds available and interest in providing dental care are considered.

d) Only accept student if stipend support available. No univ., univ. hosp., or univ. hosp. school support at present for student. All stipends at present from DHEW. Foundation stipend available but student must spend 1 additional year after 2-year Pedo program. Stipend is similar in funding to DHEW program without the 1 additional year that must be spent in foundation clinic.

e) Minimum by support (X per year). $X + 2$ is largest - number of spots - chairs & patients at clinical space. [Director] can delegate and does so; his time he feels is not the limiting factor (but paper work grows burdensome). Feedback from graduates: sees them but not much feedback.

Clinical space - $X + 2$ maximum; X minimum due to funding now.

Comparison Programs - University-Based

a) The maximum of students the program will accept is determined by the physical facilities available. Currently, the

program takes X new students each year -- thus a total of 2X students annually. X first year students and X second year students.

Physical facilities -- total of 2X students.

- b) University requirement: X students per 1 FTE - faculty is adequate. Constraint: available patients for clinical. Pedodontic community suggests problem is training enough numbers.

Started with $\frac{X}{2}$ led to X, Ratio of FTE to students, could handle more probably, but not real patient availability, 10-12 appts. to get X.

- c) Based on facilities and dental assistants, etc. Tried X + 1 but didn't work out too well. (limited faculty supervision), 1 assistant for X students.

Arbitrarily - feel comfortable and facilities better for X students each year. Assistants determines the size of the class to some extent.

Comparison Programs - Hospital-Based

- a) The need for additional students exists; the fiscal problems limit the numbers of students accepted into this program. Director has convinced the hospital director of the need for 1 additional intern. Salary for this position is pending.
- b) Size of seminar group, number and type of rotations, number of dental chairs; would accept 1 more if exceptionally good candidate.

X fits into the rotations involved in the program. Fewer students would make it difficult to fill the rotations. The pedodontic training program director feels that X students is the right number for

seminar series and 2X would be the most that the staff and facilities will tolerate and still operate efficiently. A 2X+1th student could be accepted in an exceptional case. X students can also adequately take care of the patient load.

- c) Space appears to be the determining factor. However, the availability of part time faculty people is of concern to the program director as well.

Space and equipment, maximum up to X per year due to teaching constraints of faculty/ratio.

5) Financial Information

Program directors were asked if they consider the goals of outside funding sources in making decisions about the type of student they support. Half said yes and half said no. Those who responded yes were also asked in what ways they did so. Their responses were:

Funded Programs

- a) If I accept outside funding I feel a responsibility to orient my decisions toward the goals of the funding institution or individual as long as those goals do not conflict with or stray too far from the goals of the overall program.
- b) An effort is made to select students having certain qualifications in addition to a required grade point average. To select students: 1) who have demonstrated a love of children and an interest in children; 2) who relate well to children; 3) who will involve the parent in the treatment of the child patient, and 4) who have expressed an interest in teaching and research.
- c) Desire students who can definitely work in an intradisciplinary atmosphere for handicapped children. Also have to receive approval of Director of Dental Services at affiliated hospital.

Comparison Programs - University-Based

- a) The funding provided by UAF/MR Grant support is used to support those students deemed to possess the greatest potential for future teaching/practice/research in mental health disabilities.
- b) We select students for support according to their interests and abilities.

Comparison Programs - Hospital-Based

- a) If outside funding was available to support one or more students, qualified applicants with a career goal similar to the funding source would receive preference to this funding.

It appears that some explicit matching of funding agency goals and student interests does take place. However, this seems to occur in only two of the six funded programs.

In general, directors of funded training programs felt that their budgets were inadequate in regard to faculty support, student stipends, student travel, and faculty travel. On the other hand, program directors felt their budgets were generally adequate regarding supplies and equipment (both teaching and research).

When asked what additional stipend support would allow them to accomplish, the funded program directors responded that their programs might attract more talented students who need higher stipends in order to support themselves. Additional stipend support is felt to be needed to bring stipends to the level of support in other programs, thereby attracting more applicants. Program directors reported increasing student discontentment in the face of rising costs of living. For example, hospital stipends have greatly increased in recent years, making university stipends less competitive.

The discrepancy in stipend levels between program types is pronounced. For the 1975-1976 academic year the funded programs reported that

first year students received \$5,400 and second year students \$5,700. The figures for the university-based comparison programs were \$3,000 and \$3,800, while for the hospital-based programs they were \$10,800 and \$11,500. The hospital-based programs provided a clear monetary incentive when contrasted with the university pedodontic programs.

Program directors also reported that stipends paid to pedodontic graduate students were similar to stipend levels paid to other graduate level students at the same institution and in some cases were lower (but none reported that pedodontic stipends were higher).

When asked if all students admitted to the pedodontic training program received financial help, four of the funded program directors said yes and two said no. By contrast, all three of the university-based comparison program directors said no and one of the three hospital program directors said no. In general, all of the programs awarded stipends based on quality considerations, e.g., grades or clinical experience.

6) Program Content

In reviewing the program content, the volume of documentation was more than we could summarize in the available time. It was necessary to concentrate on those items of highest priority and to rely on summary reviews of the site visitors. Further, many of the simple administrative variables such as the length of training time were reviewed but not displayed, since they were not key variables in the analysis. Other important variables, such as the coverage of general topics (e.g., principles of pediatrics) within the curriculum, were included in all programs and also are not displayed. Thus, this section is limited to several key indicators of the program content and those issues related to handicapped children and interdisciplinary training.

Student Activities

Both program directors and students were asked to estimate the average number of hours a student spends per week by type of activity. The

estimates were fairly close from both sources. As can be seen in Table 9, for first year students only, the activities of the funded program students were very similar to those of the hospital-based students. They were both different from the comparison university program students, who spent considerably more times per week in lectures, and seminars and conferences, and less in clinical training. The second year comparison university program students spent considerably more time per week in lectures, and seminars and conferences and only slightly less time in clinical training than the funded program or hospital comparison program students. The major change from the first year to the second appears to be in the teaching and research activities of the second year students in the funded programs.

All programs reported that their students had an opportunity for teaching experience. This is confirmed by the students' responses to the same question. Those students who responded that they had current teaching responsibilities tended to be second year students.

The same general pattern holds for research.

As can be seen in Table 10, the priorities of the pedodontic students' training varied among the different types of programs. Seventy-seven percent of the sites affiliated with funded programs listed "providing dental care to handicapped patients" as one of the priorities of the training experience, as opposed to only 25 percent of the sites affiliated with either the university- or hospital-based comparison programs. There was little difference among the sites in those who reported "understanding and managing handicapped patients" as a priority. Those sites affiliated with university-based comparison programs were very similar to the sites affiliated with funded programs. Fifty percent of the sites affiliated with university-based comparison programs mentioned anesthesiology as a priority; none of the sites affiliated with funded programs mentioned it.

Table 9

AVERAGE NUMBER OF HOURS PER WEEK PER STUDENT

| Average Number of Hours Per Week Per Student | First Year Students | | | Second Year Students | | |
|--|---------------------------|----------------------------|--------------------------|---------------------------|----------------------------|--------------------------|
| | Funded Programs (6) | University Based (3) | Hospital Based (3) | Funded Programs (6) | University Based (3) | Hospital Based (3) |
| <u>Training:</u> | | | | | | |
| Lecture, Seminar + Conference | 12 | 21 | 13 | 8 | 19 | 9.1 |
| Clinical | 20.3 | 15 | 23.3 | 23.6 | 20.7 | 21.6 |
| Community Experience | 2 | 1 | 2.5 | 4.2 | 1 | 3.2 |
| Unassigned Study Time | 6 | 2 | 3 | 4.7 | 2 | 3 |
| <u>Administrative</u> | - | - | 1.5 | - | - | 2.2 |
| <u>Teaching</u> | 1.7 | 4 | 1 | 7 | 5.5 | 3.2 |
| <u>Research</u> | - | 1.5 | 2.3 | 3.7 | 2 | 3.3 |
| <u>Other</u> | * | * | * | * | * | * |
| <u>Total</u> | 42.0 | 44.5 | 46.6 | 51.2 | 50.2 | 45.6 |

* Too many unknown factors to report data.

Table 10

PRIMARY FOCUS OF TRAINING EXPERIENCE AFFORDED
PEDODONTIC STUDENTS WHILE AT AFFILIATED SITE

| | Sites Affiliated with Funded Programs | | Sites Affiliated with Comparison Programs | | | |
|---|---|------|--|------|---------------------------|------|
| | (13) | | University- based (8) | | Hospital- based (4) | |
| | # | %* | # | %* | # | %* |
| Clinical Treatment Experience | 2 | 15.4 | 1 | 12.5 | 1 | 25.0 |
| Teaching Experience | 0 | 0.0 | 0 | 0.0 | 1 | 25.0 |
| Use of Anesthesia & Drugs in Treatment | 0 | 0.0 | 4 | 50.0 | 1 | 25.0 |
| Hospital Dentistry | 0 | 0.0 | 4 | 50.0 | 0 | 0.0 |
| Understanding & Managing Handicapped Patients | 5 | 38.5 | 3 | 37.5 | 1 | 25.0 |
| Providing Dental Care to the Handicapped | 10 | 76.9 | 2 | 25.0 | 1 | 25.0 |
| Use of Interdisciplinary Approach | 3 | 23.1 | 1 | 12.5 | 0 | 0.0 |
| Various Dental Courses | 0 | 0.0 | 0 | 0.0 | 1 | 25.0 |
| Other | 1 | 7.7 | 2 | 25.0 | 0 | 0.0 |

*Note: Percentages are based on the number of affiliated programs in that category.

Handicapping Conditions

The students were given a list of handicapping conditions and asked whether or not they had received exposure to each of the conditions, by type of exposure - lecture, clinical, and seminars and conferences. Only the highlights are discussed here. As can be seen in Table 11, cleft palate was mentioned by 90 percent or more of the students in the funded programs, in all three types of exposure, as was hemophilia and hyperactivity by the students from the hospital-based programs. Ninety percent or more of the students in the funded programs were given both lecture and clinical exposure to mental retardation. Seizure was mentioned by 90 percent or more of the students from the hospital-based comparison programs in either lecture or clinical exposure. University-based program students were apparently not universally exposed to any conditions in lecture or clinical settings, but they did list exposure to eleven conditions through seminars and conferences.

Table 12 shows the proportion of the patients who were treated by the pedodontic trainees at the affiliated institutions who had a handicap of some sort. Eighty-four percent of the sites affiliated with funded programs reported that 70 percent or more of the patients treated by pedodontic trainees had some type of handicap. Fifty percent of the university-based comparison programs and hospital-based comparison programs reported that 70 percent or more of these patients had some type of handicap.

Table 11

HANDICAPPING CONDITIONS MOST LIKELY TO BE COVERED
IN TRAINING PROGRAMS BY TYPE OF EXPOSURE
(Limited to 90% or more yes responses)

| Types of Exposure | Funded Programs (6) | Comparison Programs | |
|--------------------------------|---|--|--|
| | | University- based (3) | Hospital- based (3) |
| Lecture | Cleft Palate Mental Retardation | None | Hemophilia Seizure Hyperactivity |
| Clinical | Cleft Palate Cerebral Palsy Mental Retardation Multiple Handicapped Hyperactivity | None | Cerebral Palsy Hyperactivity Cardiac Disease Mental Retardation Cleft Palate Other Cranio- facial abnor- malities Hemophilia Seizure |
| Seminars and Conferences | Cleft Palate Cardiac Disease | Cleft Palate Other Cranio- facial ab- normalities Hyperactivity Seizure Autism Cardiac Disease Leukemia Hemophilia Epilepsy Multiple Handicapped Facial Trauma from Accidents | Hemophilia Cleft Palate Cardiac Disease Hyperactivity |

Table 12

PROPORTION OF PATIENTS TREATED BY THE PEDODONTIC
TRAINEES AT AFFILIATED SITES WHO HAVE SOME TYPE OF HANDICAP

| Proportion of Patients | Sites Affiliated With Funded Programs (13) | | Sites Affiliated With Comparison Programs | | | |
|------------------------|---|--------|---|--------|--------------------------|--------|
| | # | % | University Based (8) | | Hospital Based (4) | |
| | | | # | % | # | % |
| 10 or Less | 1 | 7.7 | 1 | 12.5 | 2 | 50.0 |
| 11 - 30 | 1 | 7.7 | 2 | 25.0 | 0 | 0.0 |
| 31 - 70 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 71 - 99 | 4 | 30.8 | 1 | 12.5 | 0 | 0.0 |
| 100 | 7 | 53.8 | 3 | 37.5 | 2 | 50.0 |
| N/A | 0 | 0.0 | 1 | 12.5 | 0 | 0.0 |
| Totals | 13 | 100.0% | 8 | 100.0% | 4 | 100.0% |

Exposure to Various Types of Health Manpower

Program directors were asked whether there was an interchange of teaching faculty between their program and other dental programs within their institution. Funded program directors responded that there was quite a bit, while one of three university comparison program directors, and none of the hospital-based program directors said this. Other questions were asked about other types of faculty interchange, but little difference was shown by the responses.

Program directors were also asked if there was a physician routinely available for consultation in treating a handicapped patient at the

dental program clinic. The funded and university-based comparison programs were similar, each with 67 percent responding yes, while all three of the hospital-based programs responded yes.

Both the faculty and students were given a list of health manpower and asked to code each personnel type from 0 to 3 according to frequency of exposure per month in both clinic and lecture. As can be seen in Table 13, the faculty and student rankings were quite consistent for the funded programs, by both lecture and clinical exposure. Pediatricians were ranked highest by lecture exposure, while other dental auxiliary personnel were ranked highest by clinical exposure. There was less consistency between faculty and student rankings among the two comparison groups. For the university comparison group, pediatricians were ranked third by faculty and first by students during lecture exposure, while these were just the reverse for the hospital-based group. Overall, there is a great deal of consistency between faculty and student rankings, and pediatricians seem to be the major non-dental personnel incorporated into the training.

7) Career Counseling

The program directors were asked about career counseling generally and whether they personally take an active role in recommending students for specific positions. Two of the six funded programs do all of the time, while two of the three university comparison programs do all of the time and two of the three hospital-based programs do all of the time.

The students were asked if they receive any career counseling regarding future career decisions. Thirty-six percent of the funded program students responded yes, but only 15 percent of the comparison university-based program students responded yes, and none replied yes from the hospital-based programs.

There appears to be a difference in opinion between the two viewpoints. Of course, one potential reason for this divergence in opinion between program

Table 13

RANK ORDER OF HEALTH MANPOWER EXPOSED TO MOST
FREQUENTLY DURING TRAINING (LIMITED TO TOP 3)

| | Funded Programs | University Based Comparison Programs | Hospital Based Comparison Programs |
|-------------------------|--|--|--|
| <u>Faculty Estimate</u> | | | |
| Lecture Exposure | Pediatrician Other Dental Specialties Child Development Specialist | Other Dental Specialties Geneticist Pediatrician | Pediatrician Child Development Specialist Other Dental Specialties |
| Clinical Exposure | Other Dental Auxiliary Personnel Pediatrician Dental Hygienist | Other Dental Auxiliary Personnel Other Dental Specialties Dental Hygienist | Other Dental Auxiliary Personnel Pediatrician Psychiatrist |
| <u>Student Estimate</u> | | | |
| Lecture Exposure | Pediatrician Child Development Specialist Other Dental Specialties | Pediatrician Psychologist Hearing and Speech Therapist | Other Dental Specialties Child Development Specialist Pediatrician |
| Clinical Exposure | Other Dental Auxiliary Personnel Other Dental Specialties Pediatrician | Other Dental Auxiliary Personnel Dental Hygienist Other Dental Specialties | Other Dental Specialties Dental Hygienist Other Dental Auxiliary Personnel |

directors and students is that these students were in the first and second year of training at least a full six months before program completion. The responses might be more consistent at a later date.

2.4.3 Outcome

1. Career Objectives

The students were asked about their future career plans. Giving equal weight to multiple responses, 44 percent of the students from the funded programs expressed interest in private practice, compared to 36 percent in an academic career. As can be seen in Table 14, these rankings were just the reverse for the comparison programs.

Table 14

IMMEDIATE CAREER OBJECTIVES OF PEDODONTIC STUDENTS

| | Funded Programs (6) | | Comparison Programs | | | |
|------------------|------------------------|--------|-------------------------|--------|-----------------------|--------|
| | | | University Based (3) | | Hospital Based (3) | |
| | # | % | # | % | # | % |
| Private Practice | 20 | 44.4 | 7 | 33.3 | 6 | 35.3 |
| Academic Career | 16 | 35.6 | 9 | 42.9 | 8 | 47.1 |
| All Others | 9 | 20.0 | 5 | 23.8 | 3 | 17.6 |
| Total* | 45 | 100.0% | 21 | 100.0% | 17 | 100.0% |

* This includes 51 first responses and 32 second responses.

Another way of approaching this issue is based on the behavior of recent program graduates. The program directors were asked to list all the program graduates during the period from 1965 to 1975. These graduates were then contacted, to the fullest extent possible, and asked about their current activities. These activities are reported in detail in Chapter 4. For our purposes here, it is interesting to compare the above career plans with the careers of these recent graduates. As can be seen in Table 15, only eight percent of the graduates from funded programs are in academic careers, compared to 11 percent of the graduates from the university-based comparison programs and 19 percent from the hospital-based comparison programs. The ranking appears to be in the same order. However, two important limitations must be mentioned immediately. First, one of the funded programs had 30 percent of its graduates in academic careers while two other funded programs had none. Second, the estimate for the hospital-based program is most likely inaccurate because it is based on one program and that program has been shown to be not representative of hospital-based programs generally.

Table 15

RATIOS OF ACADEMIC CAREER AND FOREIGN GRADUATES

| | Funded Programs (6) a | Comparison Based University Based (3) b | Hospital Based (3) c |
|--|--------------------------------|---|-------------------------------|
| Academic Career Graduates / Total Graduates | 16/196* | 4/37 | 12/64 |
| Foreign Graduates / Total Graduates | 19/196 | 3/68 | 10/64 |

a based on 5 programs only.

c based on 1 program only.

b based on 2 programs only.

* includes 5 foreign academic based graduates.

2. Assessment of Program

Each faculty member was asked to rate the pedodontic program by listing in order its strongest and weakest aspects. As can be seen in Table 16, good clinical facilities and a strong faculty ranked high across all three types of programs with a variety of other aspects deemed strongest by the three groups. Only in the funded programs was exposure to the handicapped ranked in the top three, while it was ranked among the three weakest by the hospital-based program faculty.

The students generally ranked their faculty as the strongest aspect of the program across all three types of programs. As can be seen in Table 16, both the funded and hospital-based program students ranked exposure to handicapped as a strong aspect, while the university-based comparison program students ranked it among the weakest aspects. Once again, there is a great deal of consistency between the faculty and student rankings.

In addition to these rankings, the faculty, students and consultant pedodontists (those making site visits) were each asked for their personal assessments of the individual programs. Table 17 presents these summary assessments for each of the twelve study programs, using codes to ensure program anonymity. As can be seen, the assessment of the various training programs was quite variable, both within and between comparison groups. The hospital-based comparison programs were clearly rated below the other two groups, both in overall training and in training related to the care and dental treatment of handicapped patients. The university-based comparison programs were rated slightly below the funded programs in terms of training related to handicapping conditions, but there seems to be little overall difference in general training between these two types of program. Once again, there appears to be consistency between the three viewpoints.

In an attempt to make the contrasts more explicit and more readily understandable, summary scores were calculated for the consultant pedodontist ranking using the following scale: 1) poor; 2) fair; 3) good; 4) very good; 5) excellent. Middle range evaluations, such as fair to good, were assigned mid-point

Table 16

STRONGEST AND WEAKEST ASPECTS OF PEDODONTIC TRAINING PROGRAMS

| | Faculty Opinions | | | Student Opinions | | |
|-------------------|---|---|------------------------------------|---|---|---|
| | Funded Programs | University Based | Hospital Based | Funded Programs | University Based | Hospital Based |
| Strongest Aspects | 1) Clinical Exposure | 1) Faculty | 1) Clinical Facilities | 1) Faculty | 1) Faculty | 1) Faculty |
| | 2) Exposure to Handicapped | 2) Clinical Facilities | 2) Didactic and Faculty | 2) Exposure to Handicapped | 2) Well-rounded program | 2) Care of Handicapped |
| | 3) Faculty | 3) Orthodontic Instruction and Well-Rounded Program | 3) Research | 3) Clinical Experience | 3) Clinical Facilities | 3) Inter-disciplinary experience |
| Weakest Aspects | 1) Facilities | 1) Hospital Dentistry | 1) Exposure to Handicapped | 1) Lack of Auxiliary Faculty | 1) Preparation to Treat Handicapped Children and Hospital Dentistry | 1) Exposure to Different Handicapping Conditions and Library and Research |
| | 2) Money and Lack of Auxiliary Faculty | 2) Frequency of Patients | 2) Facilities | 2) Orthodontics and Inter-disciplinary Exposure | 2) Disorganized Clinical Program and Financial Support | 2) Facilities |
| | 3) Exposure to Other Members of Health Profession | 3) Organization of Program and Research | 3) General Organization of Program | 3) Facilities | 3) Research | 3) Clinical Instruction |

Table 17

RATINGS BY CONSULTANT PEDODONTIST, STUDENTS, AND FACULTY

| Program | Ratings by Consultant Pedodontist | | Student Ratings of Preparation of Students for Pedodontic Practice | | Faculty Ratings of Preparation of Students for Pedodontic Practice | |
|----------------------------------|-----------------------------------|------------------------|--|-------------|--|-------------|
| | Overall Training | Handicapped Training | General | Handicapped | General | Handicapped |
| Funded: | | | | | | |
| F1 | good to very good | good | 8.0 | 7.4 | 8.0 | 7.9 |
| F2 | very good to excellent | very good to excellent | 6.8 | 7.8 | 7.6 | 7.7 |
| F3 | fair | poor to fair | * | * | 6.2 | 6.5 |
| F4 | fair | good | 6.7 | 7.2 | 7.4 | 8.0 |
| F5 | very good to excellent | very good | 7.0 | 7.9 | 8.7 | 8.2 |
| F6 | good to very good | good | 7.8 | 8.2 | * | * |
| Comparison, University-based: | | | | | | |
| U1 | good | poor | 8.6 | 5.2 | 8.0 | 5.5 |
| U2 | good | good | 8.0 | 8.2 | 8.1 | 8.3 |
| U3 | very good | fair | 6.2 | 6.2 | 6.7 | 6.6 |
| Comparison, Hospital-based: | | | | | | |
| H1 | poor to fair | poor | * | * | * | * |
| H2 | poor to fair | fair | 5.5 | 7.5 | 6.2 | 6.2 |
| H3 | good to excellent | fair | 7.1 | 6.8 | 6.8 | 6.3 |
| | | | 7.2 | 7.3 | 7.6 | 7.3 |

Note: Scale from 1 to 9 with 1 = low, 9 = high.

* Insufficient number of observations

scores, e.g., 2.5 in this case. A score was calculated for the three study groups. The average scores for all three viewpoints are presented in Table 18.

Using this admittedly crude scoring procedure highlights several results. First, the overall assessments of the funded and university-based comparison programs are similar and clearly better than for the hospital-based programs. Second, the assessment of the funded training programs is clearly much better than for the training programs in the two comparison groups. Third, overall training and handicapped training are rated almost equally in the funded programs, whereas the training for treating handicapped children is rated below overall training for the two groups of comparison programs.

Table 18

OPINIONS ON PREPARATION OF STUDENTS
FOR PEDODONTIC PRACTICE

| <u>Consultant Pedodontist Opinions</u> | <u>Funded Programs</u> | <u>Comparison Programs</u> | |
|--|------------------------|----------------------------|--------------------------|
| | | University based (3) | Hospital based (3) |
| | (6) | | |
| Overall Training Score | 3.3 | 3.3 | 2.2 |
| Handicapped Training Score | 3.2 | 2.0 | 1.7 |
| <u>Student Opinions</u> | | | |
| General Training Score | 7.2 | 7.7 | 6.5 |
| Handicapped Training Score | 7.6 | 6.6 | 7.1 |
| <u>Faculty Opinions</u> | | | |
| General Training Score | 7.8 | 7.4 | 7.1 |
| Handicapped Training Score | 7.8 | 6.9 | 6.4 |

Note: Consultant Pedodontic Scale from 1 to 5 with 1 = low, 5 = high
Student and Faculty Scale from 1 to 9 with 1 = low, 9 = high

Both students and faculty were asked to rank the overall quality of their particular program in terms of faculty, students, clinical and research facilities, and library. As can be seen in Table 19, the faculty ranked the program components consistently both within and between the program categories. The overall assessment by the faculty members was positive and reasonably high. The exception was research facilities, which the faculty tended to rank lower than other components.

An examination of the student rankings on the same program components reveals a slightly different pattern. The students generally rated students, faculty, and library facilities higher than they did research and clinical facilities. This was especially true for the hospital-based comparison programs.

Table 19

FACULTY AND STUDENT RANKS OF PEDODONTIC TRAINING PROGRAM

| Rank of Overall Quality of Each of the Following: | Faculty Ranks | | | Student Ranks | | |
|---|-----------------------------------|------------------------------------|----------------------------------|-----------------------------------|------------------------------------|----------------------------------|
| | Funded Programs (6) mean | Comparison Programs | | Funded Programs (6) mean | Comparison Programs | |
| | | University Based (3) mean | Hospital Based (3) mean | | University Based (3) mean | Hospital Based (3) mean |
| 1. Students | 7.63 | 7.17 | 7.18 | 7.57 | 7.61 | 7.40 |
| 2. Faculty | 7.39 | 7.78 | 7.09 | 7.17 | 8.23 | 6.70 |
| 3. Clinical Facilities | 7.08 | 7.61 | 5.18 | 6.92 | 6.53 | 3.40 |
| 4. Research Facilities | 5.92 | 6.59 | 5.91 | 6.46 | 6.91 | 4.80 |
| 5. Library Facilities | 7.49 | 7.68 | 6.36 | 7.50 | 7.46 | 4.60 |

Scale: Range from 1 to 9 with 1 = low, and 9 = high.

2.5 PROGRAM ASSESSMENT RESULTS

1) Procedural

- a) Although some limitations were noted to the site assessment procedures used, the overall impression gained was that the site visit approach within the evaluative approach is feasible. However, it is clear that the amount of information to be collected can be reduced.
- b) Financial data are generally not available, or reliable when they are available.
- c) Faculty and student questionnaires should be abbreviated.
- d) A determination should be made in advance if patient exposure data can be collected.
- e) The site visit pre-structure was quite useful. Expectations of participants were defined. Concept, style, and content of training can be reduced.
- f) The multiple views of the program director, faculty, affiliated institutions, and students are important, particularly where similarities or discontinuities can be defined.
- g) The structured approach permitted systematic identification of factors, comparable information from these multiple sources, and a ready evaluation mechanism.
- h) The burden on the institution and respondents was not undue. Most expressed that the opportunity and necessity of reviewing the program was useful to them in itself.

2) Substantive

- a) The program content assessment clearly showed that training on the treatment of handicapped children is much better in the funded programs than in either of the two comparison groups.

- b) There was no difference among the three types of programs regarding goals and objectives. All programs selected for study were approved by the A.D.A.
- c) In general, funded programs more actively recruited students, but nearly half of the students enrolled in academic programs also attended those same programs as undergraduates.
- d) Few of the programs typically accept part-time students.
- e) In general, the main constraints on number of students trained are available staff (faculty and auxiliary people) and space. Funding was more often mentioned as a constraint in relation to number of students accepted by funded programs than by comparison programs.
- f) The two main factors reported by the students as influencing their choice of a training program were overall quality of the program and quality of the faculty.
- g) While program directors felt that their budgets were adequate for supplies and equipment, they felt that funds were inadequate for both student and faculty support. In particular, the directors felt an acute need to bring stipend levels up to the level of support provided by hospital-based programs. Program directors reported rising student discontent at stipend levels in the face of spiraling costs of living.
- h) Faculty members generally ranked program components positively and consistently, regardless of type of program. The exception was research facilities, which the faculty tended to rank lower than other program components. Students in general ranked research and clinical facilities somewhat lower than they did the faculty, the library facilities, and the pedodontic graduate students.
- i) Half of the funded program directors felt that the physical plant used in the clinical program was inadequate. By contrast, all of the university-based comparison program directors felt clinic facilities were adequate and none of the hospital program directors felt facilities were adequate.

- j) The number of full-time faculty was somewhat greater among funded programs and the number of students was not, with the result that the faculty-student ratio in the funded programs was more favorable. Substantially more of the funded program faculty were board-certified. Joint appointments were also less common among the faculty of funded programs.

CHAPTER 3. PRACTITIONER SURVEY

3.1 INTRODUCTION

Providing dental treatment for handicapped children and managing their special needs has been outlined comprehensively by Miller (1965). He lists reasons why some practitioners are reluctant to treat handicapped patients and states that these vary from lack of education of dentists and parents to lack of research for providing better equipment and methods of treatment. He also identifies the governmental health programs in which dental treatment for handicapped persons has been omitted. Latimer (1969), in a survey prompted by Miller's discussion, reports her experience in developing dental treatment for the handicapped population in a tristate project to aid mentally retarded persons. She sent out questionnaires to 148 dentists and obtained a response from 104 of them. On the basis of the replies she concluded that: 1) a coordinated effort among the dental personnel in the area increased the extent of dental care for handicapped people; 2) the compilation of a directory of dentists willing to treat handicapped patients assisted; and 3) dentists, once interested, are willing to treat the dental needs of the handicapped population.

In 1970, Mathewson and Beaver reported the results of a mail survey to determine sources for management of the dental problems of handicapped patients. Practitioners who limited their practices to children or those practitioners who took a specific interest in the dental problems of handicapped patients reported treating more such patients. Mental retardation, cerebral palsy, and emotional disturbances were the problems most frequently treated, followed by cleft palate. The pedodontists reported using hospital facilities and pre-medication more often than general practitioners, as well as evaluating a greater percentage of different types of handicapping conditions. Although the dentists surveyed expressed interest in acquiring further knowledge of the care of the handicapped, educational resources are still very limited. Mathewson and Beaver report the directory of continuing programs for 1969 lists a total of over 275 courses. Not more than 10 of these courses were related to dentistry for handicapped patients.

Evaluation of the impact of the dental training programs requires information on the attitudes, knowledge, and practices of individual dentists. The evaluation approach specified

earlier included the use of a survey for gathering this information. Thus, the development of the survey methodology and accompanying instrument (questionnaire) were included in the work.

3.1.1 The Sample

The purpose of the survey was to complement the evaluation of pedodontic training programs related to delivery of dental care to handicapped children. The relationship between graduates of pedodontic training programs and the universe of dental practitioners who serve handicapped children is by no means a one-to-one correspondence. It seemed reasonable to expect that some graduates, including some who received specialty training related to handicapped children, do not treat handicapped children. It also seemed reasonable to expect that many practitioners who treat handicapped children have not had specialty training. Ideally, it would be appropriate to investigate both issues. Our primary focus was on the graduates of both funded and non-funded training programs, to determine whether there is any difference in their attitudes, knowledge, or behavior regarding handicapped children. From the viewpoint of the community-based problem, dental services for handicapped children, comparing these two groups was viewed as overly restrictive. Since all licensed dentists potentially treat handicapped children, a more rigorous and inclusive study would compare program graduates with all other practicing dentists. This was the direction taken. For purposes of the survey, dentists were classified into three strata:

| <u>Practice Type</u> | <u>Population</u> | <u>Sample</u> | |
|-----------------------|-------------------|---------------|--------------|
| | | <u>N</u> | <u>Ratio</u> |
| General Practitioners | 89222 | 1190 | 1/75 |
| Pedodontists | 1162 | 1162 | 1/1 |
| Other Specialists | 8264 | 1081 | 1/8 |

(Source: unpublished A.D.A. registry data as of 1 June, 1975)

The practitioner sample was selected by the A.D.A. research staff, according to the contractor's specifications, using their files as of 1 June, 1975. The A.D.A. registry (data tape) includes both members and nonmembers of the American Dental Association. Specifically excluded from the dental population were: Federal and State employed dentists, public health dentists, retired dentists, administrators, interns, teachers, residents, graduate students, and dentists over 65 years old. These individuals were excluded, as they are less likely to be in active dental practice. There are several techniques which could have been used to estimate the necessary sample size. In this case, operational constraints in combination with analysis requirements determined sample size. The strategy to include all pedodontists (an estimated 300) who graduated from the six funded programs and from the six comparison programs did not prove feasible, since A.D.A. files do not contain information on school attended for postgraduate work. The decision was made to include all pedodontists, and to post-stratify on place of pedodontic training after the questionnaires were returned. This procedure initially yielded 1,162 pedodontists. Based on the decision to include all pedodontists, sample size for the other two strata was relatively straightforward. The decision was made to sample systematically the two remaining strata so as to yield approximately the same number of general practitioners and other dental specialists as of pedodontists. It was felt that such a procedure would yield sufficient numbers to 1) sustain the detailed analyses planned, 2) detect meaningful differences between groups, and 3) correct for non-responses. Accordingly, general practitioners were sampled using a ratio of 1/75 and other specialists were sampled using a ratio of 1/8. This yielded 1,190 general practitioners and 1,081 other specialists, for a total of 3,433 for the three samples.

Records on dentists were obtained from the Data Processing Division of the American Dental Association. These were on two 7-track magnetic computer tapes. The records were copied onto one 9-track computer tape and all individuals not meeting the above sample requirements were eliminated. Again, the sampling scheme consisted of three strata: general practitioners, pedodontists, and other dental specialists. Other dental specialists were defined as oral surgeons, endodontists, orthodontists, periodontists, and prosthodontists. Pedodontists were in a separate stratum and public health dentists were excluded altogether. The records were sorted as follows:

Practice (general practitioners, pedodontists,
other specialists)

Zip Code (using all 5 digits)

Name (last name, first name)

Using the criteria outlined in the previous section, the three groups of dentists were selected by the A.D.A., which also provided the contractor with:

- 1) Four sets of mailing labels, one each for three mailings, and a fourth for the purpose of logging.
- 2) Two computer listings of the three groups of dentists for purposes of logging.
- 3) A series of one-way tables comparing the three study groups with the A.D.A. population register from which they were drawn.

3.2 QUESTIONNAIRE CONTENT AND DEVELOPMENT

A preliminary version of the questionnaire was sent to members of the Division of Monitoring and Analysis (BCHS) for their initial review. After receiving comments from the BCHS staff and consultants, the initial questionnaire was revised. This second version of the questionnaire was circulated for critical review early in January 1975. It was revised and in March was pretested on a small sample (9) of dental practitioners drawn from the membership of practicing dentists in the United States. The focus of the pretest was on how completely the questionnaire was filled out, the overall response rate by dentists, and time required to accumulate responses. After evaluating information gained from the pretest, the questionnaire was reduced somewhat in length and reorganized.

The intent was to keep the questionnaire relatively short and capable of being easily completed to help maximize the response rate. Closed multiple choice questions were used wherever possible.

Major content areas of the questionnaire included:

I. Background

- location
- age
- professional affiliations, community involvement

II. Dental Practice

- composition of handicapping conditions
- content of approach to the handicapped child
- community resources available
- ancillary staff
- volume (total and handicapped)

III. Training

- prior training, relation to effectiveness in practice (didactic, clinic, field experience); this includes certificate, or seminar - short course experience
- current perceived training needs by area

The sample design, cover letters and final version of the survey questionnaire received Office of Management and Budget clearance on July 25, 1975. A copy of the questionnaire is contained in Appendix B.

Working on the assumption that a shorter questionnaire might elicit responses from that subset of the dental sample that were hesitant to fill out a long questionnaire, a shortened version of the questionnaire was quickly developed. The number of questions was reduced from 50 to 23 and redesigned to fit onto the front and back of a single 8½ by 11 inch page. A copy of the short form of the questionnaire is also contained in Appendix B. As can be seen, the critical content of the questionnaire was retained, particularly that dealing with treatment of the handicapped and related training.

A third, much-shortened version was developed for a study of nonrespondents. This questionnaire contained six questions which would allow comparisons to be made between those who responded to either the long form or the short form and nonrespondents.

In addition, a number of procedures employed in the overall survey strategy were designed to maximize the response (based on mail survey response rate studies):

- 1) Presurvey announcements were made in the ADA News, the American Journal of Orthodontics, and Dentistry for Children, in the issue preceding the initial survey mailing date. In addition, an announcement was included in the registration materials of each participant at the 1975 annual meeting of the American Academy of Pedodontists.
- 2) First class postage was used on the outgoing envelope, and a self-addressed envelope was enclosed for return mail, using first class postage.
- 3) This questionnaire was photoreduced and multi-lithed into a booklet form for a less formidable appearance. It was constructed in sections in such a manner that if the response to the lead-in question was negative, that section was skipped, thereby reducing respondent burden.

3.3 SURVEY PROCEDURES AND RESPONSE PATTERNS

The following survey sequence was followed:

- 1) An initial questionnaire sent by regular surface mail (all mailed on the same day, 8/1/75).
- 2) Four weeks after the initial mailing, all dentists whose questionnaires had been returned because of incorrect addresses were eliminated. All non-respondents were sent a follow-up letter and another questionnaire (8/29/75).

Explicit refusals were sent a specially designed, shortened questionnaire.

- 3) Four weeks after the second mailing, the short questionnaire was sent to all nonrespondents who had already received the long questionnaire twice, (9/26/75). (This was done in an effort to increase response rates; over 50 percent of the refusals who were sent a short form in the second mailing returned them completed.) Also, those who explicitly refused to fill out the second long questionnaire sent to them were sent a short form.

Once the samples were drawn and the survey implemented some attrition occurred. Incorrect addresses, deaths, retirement, and inappropriate age or residence reduced sample size for pedodontists to 1,124, for general practitioners to 1,045, and for other specialists to 1,014. The response rates were as follows:

| | |
|-----------------------|--------------|
| Pedodontists | 74.8 percent |
| General Practitioners | 68.8 percent |
| Other Specialists | 69.0 percent |

A detailed tabulation of sampling and response patterns is presented in Table 20, page 90.

Table 20

RESPONSE FREQUENCIES BY TYPE OF
RESPONSE AND PRACTITIONER TYPE

| | General Practice Sample | Other Specialist Sample | Pedodontic Sample |
|---|----------------------------|----------------------------|----------------------|
| SIZE OF POPULATION | 89,222 | 8,264 | 1,162 |
| SIZE OF SAMPLE | 1,190 | 1,081 | 1,162 |
| SAMPLE TO POPULATION | 1 : 74.98 | 1 : 7.64 | 1 : 1 |
| TYPE OF RESPONSE | | | |
| Completed Long Questionnaire | 529 | 513 | 650 |
| Completed Short Questionnaire | 190 | 187 | 191 |
| Explicit Refusal | 17 | 28 | 23 |
| Non-response | 309 | 286 | 260 |
| Incorrect Address | 44 | 9 | 6 |
| Retired, Deceased, Inactive, Academic or Inappropriate to Study Design | 101 | 58 | 32 |
| RESPONSE RATES | | | |
| Number Completed (Long and Short) | 719 | 700 | 841 |
| Revised Sample Size (Original Less Incorrect Address and Retired, Deceased, etc.) | 1,045 | 1,014 | 1,124 |
| RESPONSE RATES (Number Completed Divided by Revised Sample Size) | 68.8% | 69.0% | 74.8% |

3.4 SAMPLING RESULTS AND ADEQUACY OF SAMPLING FRAME

Data that could be used to evaluate the sampling strategy were limited. Essentially our assessment involved comparing the goodness of fit between the samples drawn and the population estimates from A.D.A. sources. The comparisons were limited to geographic residence (HEW Region) and age.

There was extremely good correspondence between sample and population for region of residence for both general practitioners and other specialists. (Recall that all pedodontists were included in the study.) The data (not shown) also indicated a close correspondence between the age distribution of the sample and the population for the two groups of practitioners. Based on these limited but extremely close comparisons, the contractor concluded that its sampling strategy had yielded samples representative of the universe as approximated by the A.D.A. data files.

Each source of data for constructing a sampling frame has advantages and limitations. The advantages of the A.D.A. file were substantial--it was computerized, it was the most comprehensive registry of dentists in the United States as of June 1975, and most important, it was available and accessible. An examination of the table of response frequencies (page 90) indicates the limitations of the file. First, from 0.5 to 3.7 percent of each of the three samples had incorrect addresses and from 2.8 to 8.5 percent should not have been included due to the fact that they were retired, deceased, inactive, or were in excluded categories (e.g., academic, military, or over 65). Overall sample attrition due to these causes ranged from 3.3 percent for pedodontists to 12.2 percent for general practitioners.

In addition, as a result of the responses received, a misclassification of ten cases was found. According to A.D.A. files, there were 1,172 pedodontists in the U.S. as of July 1, 1975. Ten cases were explicitly found as false negatives. After receiving responses from 851 cases (long and short), ten cases were found to be other specialists rather than pedodontists. These ten cases were then subtracted from the pedodontic sample and added to the other specialist sample. These changes are reflected in Table 20 data. However, a misclassification problem was found. There appears to be a substantial number of false positives. For purposes of linking the pedodontic responses to the site assessment phase

of the study, an independent source of information was available to cross-reference the pedodontic practitioners. A list, by name and last known address, was gathered at each of the twelve programs included in the site assessment. These twelve lists included 366 graduates since 1965. Unfortunately, only 105 of these graduates were included in the A.D.A. listing of pedodontists. After further checking, 45 of the 366 graduates were found to be in a foreign country or in the military. This left 214 of the 366 graduates excluded from this study. An attempt was made to administer the short questionnaire to these 214 graduates, primarily for purposes of the site assessment. Addresses could not be found for 34 of the 214 graduates. Questionnaires were sent to the 179 that could be located. Of these, 123 responded. More details on this group are included in Chapter 4. The major point here is that these known false positives come from the 12 training programs that were investigated in detail. There are probably another group of false positives in the other 29 pedodontic programs. Thus, with such a large known misclassification error and another whose magnitude is unknown, there is no appropriate technique for calculating national estimates from the available data.

3.5 A NON-RESPONSE BIAS CHECK

In an attempt to measure possible bias, nonrespondents (those who did not return any questionnaire and did not explicitly refuse) were surveyed. Of the general practitioner and other specialist samples, a 10 percent sample of the nonrespondents was sent a six-item questionnaire and a second 10 percent sample of the same two groups was contacted by telephone. A 20 percent sample of the pedodontic nonrespondents was also contacted by telephone and the same questionnaire was used. Telephone contact was more successful than mail contact (55 percent vs. 37 percent responding respectively) and the overall response rate was highest for pedodontists (62 percent). The respondents and nonrespondents were compared on the following categories: region of residence, age, years practiced, treatment of children and handicapped children, and whether they had received clinical and/or classroom education on handicapped children. No systematic bias was found for any of these factors.

3.6 SURVEY RESULTS

Initial data analyses were directed at comparing those who returned a long questionnaire with those who returned a shortened version. The strategy was to determine if the two groups should be combined, thereby increasing the effective sample size for that subset of items common to both questionnaires.

Seven variables were selected for the initial comparisons: (1) region of residence; (2) year of birth; (3) number of years practiced dentistry; (4) treatment of children; (5) treatment of handicapped children; (6) formal classroom education on treating handicapped children; and (7) clinical training on handicapped children.

The data for general practitioners indicated that there was reasonably close correspondence between the two groups on all comparison variables. Calculation of the chi-square goodness of fit test indicated differences were not statistically significant. Therefore, the two groups of respondents could be assumed to come from the same population. The same general pattern held for other specialists. (Data not shown.)

Turning to pedodontists, results of the chi-square analysis indicated one exception to this pattern. Significantly more of the pedodontists returning the short questionnaire reported that they had had clinical training on dental treatment of handicapped children ($X^2 = 4.5$, $df = 1$, $p < .05$). (See Table 21.)

Based on these results, the decision was made to present all results for general practitioners and other specialists using pooled data, i.e., combining responses from long and short questionnaires. However, since there was a significant difference in the amount of clinical training about handicapped children reported in long and short questionnaires, data will be presented separately for pedodontists in subsequent analyses and discussions.

3.6.1 Dental Training and Treatment of the Handicapped

It is clear that participation in a pedodontic post-graduate training program increases the likelihood that a dentist will treat handicapped children. Substantially more dentists, whether general practitioners, other specialists, or pedodontists, reported that they treated the handicapped if they had received education in such a training program. As

Table 21

NUMBER AND PERCENT OF PRACTITIONERS WHO RESPONDED TO THE
LONG AND SHORT QUESTIONNAIRE BY TYPE OF PRACTITIONER AND
FORMAL CLASSROOM EDUCATION AND CLINICAL TRAINING
ON HANDICAPPED CHILDREN

| Have You Had Formal Classroom Education on H.C.? | General Practice | | Other Specialist | | Pedodontist | | | | | | | |
|--|------------------|-------------------|------------------|-------------------|-------------|-------------------|-----|--------|-----|--------|-----|--------|
| | Long Q # | Short Q # % | Long Q # | Short Q # % | Long Q # | Short Q # % | | | | | | |
| Yes | 193 | 36.5 | 55 | 28.9 | 227 | 44.2 | 82 | 43.9 | 513 | 78.9 | 150 | 78.5 |
| No | 332 | 62.8 | 126 | 66.3 | 277 | 54.0 | 99 | 52.9 | 129 | 19.8 | 39 | 20.4 |
| Not Applicable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.3 | 0 | 0.0 |
| N.A. | 4 | 0.8 | 9 | 4.7 | 9 | 1.8 | 6 | 3.2 | 6 | 0.9 | 2 | 1.0 |
| | | | | | | | | | | | | |
| Have You Had Clinical Training on H.C.? | | | | | | | | | | | | |
| Yes | 126 | 23.8 | 47 | 24.7 | 250 | 48.7 | 105 | 56.1 | 451 | 69.4 | 151 | 79.1 |
| No | 395 | 74.7 | 134 | 70.5 | 251 | 48.9 | 77 | 41.2 | 188 | 28.9 | 38 | 19.9 |
| Not Applicable | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.5 | 0 | 0.0 |
| N.A. | 8 | 1.5 | 9 | 4.7 | 12 | 2.3 | 5 | 2.7 | 8 | 1.2 | 2 | 1.0 |
| | | | | | | | | | | | | |
| Total | 529 | 100.0% | 190 | 100.0% | 513 | 100.0% | 187 | 100.0% | 650 | 100.0% | 191 | 100.0% |

can be seen in Table 22, this pattern held for both the long and short questionnaire pedodontic respondents. One interesting result is that about one-fourth of the pedodontists who said they treated handicapped children had not received post-graduate pedodontic training. About 72 percent reported both treatment of the handicapped and participation in a pedodontic program.

Since substantial numbers of dentists reported not having participated in a formal pedodontic training program, we looked at whether they had had classroom or clinical training about handicapped children. As can be seen in Table 23, in general those dentists receiving classroom training on the handicapped were more likely to report treating such children. As might be expected, this trend was most pronounced for pedodontists, with about four-fifths reporting both classroom training and treatment of handicapped children. Again, a surprisingly large proportion (about one-fifth) of pedodontists reported no classroom education on handicapped children. This same general pattern held for both long and short questionnaires.

From the data in Table 24, it is clear that there is the same close association between treating handicapped children and participation in clinical training about these types of patients. The trend is most pronounced for pedodontists. Almost 100 percent of those who had such training treat handicapped children, and of those who treat handicapped children, over three-fourths have had clinical training. This held for both long and short questionnaires. Almost 30 percent of the pedodontists had received no clinical training on handicapped children, yet over 80 percent of these dentists treat handicapped children.

To gain additional perspective on the role of training in subsequent practice patterns, we examined amount of exposure to handicapped children during training (Table 25). Although asking dentists to estimate the number of handicapped children seen during training provides an extremely crude measure, its validity is enhanced if it confirms the patterns already observed. This is the case. Across all three practitioner groups, the more handicapped children seen during dental training the greater the likelihood that the dentist is currently treating such patients. This trend is clearest for general practitioners, in which dramatically more dentists with exposure to handicapped children during training treat such children. Pedodontists clearly receive much more exposure to such patients. More than 46 percent of the pedodontists who treat handicapped children reported seeing 51 or more such patients during training, compared to 26 percent for other specialists and 15 percent for general practitioners.

Table 22

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND EDUCATION ON DENTAL TREATMENT
OF HANDICAPPED CHILDREN AS PART OF PEDODONTIC PROGRAM

| Received Education on Dental Treatment of Handicapped Children as part of Pedodontic Program | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|--|--------------------------------------|-----------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|--|---------------------|--------------------------------------|---------------------|---|---------------------|--------------------------------------|---------------------|
| | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Yes | 56 | $\frac{18.1}{76.7}$ * | 17 | $\frac{5.3}{23.3}$ | 198 | $\frac{39.4}{91.2}$ | 19 | $\frac{17.4}{8.8}$ | 461 | $\frac{74.8}{99.6}$ | 2 | $\frac{8.0}{0.4}$ | 128 | $\frac{76.6}{98.5}$ | 2 | $\frac{20.0}{1.5}$ |
| No | 253 | $\frac{81.9}{45.4}$ | 304 | $\frac{94.7}{54.6}$ | 305 | $\frac{60.6}{77.2}$ | 90 | $\frac{82.6}{22.8}$ | 155 | $\frac{25.2}{87.1}$ | 23 | $\frac{92.0}{12.9}$ | 39 | $\frac{23.4}{83.0}$ | 8 | $\frac{80.0}{17.0}$ |
| Total | 309 | 100.0% | 321 | 100.0% | 503 | 100.0% | 109 | 100.0% | 616 | 100.0% | 25 | 100.0% | 167 | 100.0% | 10 | 100.0% |

*Note: Percentage on top is the column percentage and percentage on the bottom is the row percentage.

Table 23

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND CLASSROOM EDUCATION ON DENTAL
TREATMENT OF HANDICAPPED CHILDREN

| Received Classroom Education on Dental Treatment of Handi- capped Children | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|---|--------------------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|--|--------|--------------------------------------|--------|---|--------|--------------------------------------|--------|
| | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Yes | 158 | 51.5* | 72 | 22.4 | 262 | 52.3 | 30 | 28.0 | 507 | 82.4 | 5 | 20.0 | 135 | 80.8 | 3 | 30.0 |
| | | 68.7 | | 31.3 | | 89.7 | | 10.3 | | 99.0 | | 1.0 | | 97.8 | | 2.2 |
| No | 149 | 48.5 | 249 | 77.6 | 239 | 47.7 | 77 | 72.0 | 108 | 17.6 | 20 | 80.0 | 32 | 19.2 | 7 | 70.0 |
| | | 37.4 | | 62.6 | | 75.6 | | 24.4 | | 84.4 | | 15.6 | | 82.1 | | 17.9 |
| Total | 307 | 100.0% | 321 | 100.0% | 501 | 100.0% | 107 | 100.0% | 615 | 100.0% | 25 | 100.0% | 167 | 100.0% | 10 | 100.0% |

*Note: Percentage on top is the column percentage and the percentage on the bottom is the row percentage.

Table 24

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND CLINICAL EDUCATION ON DENTAL
TREATMENT OF HANDICAPPED CHILDREN

| Received Clinical Education on Dental Treatment of Handi- capped Children | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|--|--------------------------------------|---------------|--------------------------------------|--------------|--------------------------------------|--------------|--------------------------------------|--------------|--|--------------|--------------------------------------|--------------|---|--------------|--------------------------------------|--------------|
| | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Yes | 119 | 38.7* 76.3 | 37 | 11.6 23.7 | 310 | 62.5 91.4 | 29 | 26.6 8.6 | 449 | 73.4 99.8 | 1 | 4.0 0.2 | 136 | 81.4 97.8 | 3 | 30.0 2.2 |
| No | 188 | 61.3 40.0 | 282 | 88.4 60.0 | 186 | 37.5 69.9 | 80 | 73.4 30.1 | 163 | 26.6 87.2 | 24 | 96.0 12.8 | 31 | 18.6 81.6 | 7 | 70.0 18.4 |
| Total | 307 | 100.0% | 319 | 100.0% | 496 | 100.0% | 109 | 100.0% | 612 | 100.0% | 25 | 100.0% | 167 | 100.0% | 10 | 100.0% |

*Note: Percentage on top is the column percentage and the percentage on the bottom is the row percentage.

Table 25

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND NUMBER OF HANDICAPPED CHILDREN
TREATED IN TRAINING

| Number of Handi- capped Children Treated in Training | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|--|--------------------------------------|-----------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|--------------------------------------|---------------------|--|----------------------|--------------------------------------|--------------------|---|----------------------|--------------------------------------|---------------------|
| | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| None | 43 | $\frac{23.2^*}{40.2}$ | 64 | $\frac{54.2}{59.8}$ | 34 | $\frac{9.6}{72.3}$ | 13 | $\frac{24.5}{27.7}$ | 62 | $\frac{12.4}{95.4}$ | 3 | $\frac{50.0}{4.6}$ | 14 | $\frac{9.9}{82.4}$ | 3 | $\frac{60.0}{17.6}$ |
| 1-5 | 58 | $\frac{31.4}{64.4}$ | 32 | $\frac{27.1}{35.6}$ | 118 | $\frac{33.4}{81.4}$ | 27 | $\frac{50.9}{18.6}$ | 60 | $\frac{12.0}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 21 | $\frac{14.8}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| 6-10 | 20 | $\frac{10.8}{69.0}$ | 9 | $\frac{7.6}{31.0}$ | 37 | $\frac{10.5}{94.9}$ | 2 | $\frac{3.8}{5.1}$ | 33 | $\frac{6.6}{91.7}$ | 3 | $\frac{50.0}{8.3}$ | 15 | $\frac{10.6}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| 11-20 | 19 | $\frac{10.3}{76.0}$ | 6 | $\frac{5.1}{24.0}$ | 30 | $\frac{8.5}{90.9}$ | 3 | $\frac{5.7}{9.1}$ | 43 | $\frac{8.6}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 10 | $\frac{7.0}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| 21-50 | 17 | $\frac{9.2}{81.0}$ | 4 | $\frac{3.4}{19.0}$ | 42 | $\frac{11.9}{91.3}$ | 4 | $\frac{7.5}{8.7}$ | 63 | $\frac{12.7}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 16 | $\frac{11.3}{94.1}$ | 1 | $\frac{20.0}{5.9}$ |
| 51 or more | 28 | $\frac{15.1}{90.3}$ | 3 | $\frac{2.5}{9.7}$ | 92 | $\frac{26.1}{95.8}$ | 4 | $\frac{7.5}{4.2}$ | 237 | $\frac{47.6}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 66 | $\frac{46.5}{98.5}$ | 1 | $\frac{20.0}{1.5}$ |
| Total | 185 | 100.0% | 118 | 100.0% | 353 | 100.0% | 53 | 100.0% | 498 | 100.0% | 6 | 100.0% | 142 | 100.0% | 5 | 100.0% |

*Note: Percentage on top is the column percentage and percentage on the bottom is the row percentage.

One additional perspective was provided by asking dentists whether they felt they had received sufficient exposure to handicapped children during training. Overall, 20 percent of the general practitioners reported in the affirmative, compared to 39 percent of the other specialists and 53 percent of the pedodontists. Such a perception is also closely related to current treatment patterns; substantially more dentists from all three practitioner groups who report they received sufficient exposure to handicapped children during their training report that they currently treat such patients (Table 26).

Overall, it appears that there is a reasonably close relationship between recency of graduation from dental school and treatment of handicapped children. For all three groups of practitioners, more of those who began practicing dentistry after World War II report treating handicapped children. For example, less than a third of the general practitioners practicing prior to 1945 currently treat handicapped children, but over half of those beginning practice since 1965 treat such patients. For all three samples, slightly less than half the general practitioners, 83 percent of the other specialists, and 96 percent of the pedodontists report that they currently treat the dental problems of handicapped children (See Table 27).

Table 26

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND SUFFICIENT EXPOSURE
TO HANDICAPPED CHILDREN IN TRAINING

| Did You Have Sufficient Exposure to Handicapped Children in Training? | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|--|--------------------------------------|---------------|--------------------------------------|--------------|--------------------------------------|--------------|--------------------------------------|--------------|--|---------------|--------------------------------------|--------------|---|--------------|--------------------------------------|-------------|
| | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | | Treatment of Handicapped Children | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| Yes | 94 | 32.4* 79.7 | 24 | 8.0 20.3 | 208 | 43.3 90.4 | 22 | 20.6 9.6 | 321 | 53.2 100.0 | 0 | 0.0 0.0 | 98 | 60.1 96.1 | 4 | 40.0 3.9 |
| No | 196 | 67.6 41.5 | 276 | 92.0 58.5 | 272 | 56.7 76.2 | 85 | 79.4 23.8 | 282 | 46.8 92.5 | 23 | 100.0 7.5 | 65 | 39.9 91.5 | 6 | 60.0 8.5 |
| Total | 290 | 100.0% | 300 | 100.0% | 480 | 100.0% | 107 | 100.0% | 603 | 100.0% | 23 | 100.0% | 163 | 100.0% | 10 | 100.0% |

*Note: Percentage on top is the column percentage and the percentage on the bottom is the row percentage.

Table 27

NUMBER AND PERCENT OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND YEAR FIRST PRACTICED DENTISTRY

| Year First Practiced Dentistry | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample Long Questionnaire | | | | Pedodontist Sample Short Questionnaire | | | |
|-----------------------------------|--------------------------------------|----------------------|-----|---------------------|--------------------------------------|---------------------|-----|---------------------|--|----------------------|----|--------------------|---|----------------------|----|---------------------|
| | Treatment of Handicapped Children | | | | Treatment of Handicapped Children | | | | Treatment of Handicapped Children | | | | Treatment of Handicapped Children | | | |
| | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % |
| 1900-1945 | 24 | $\frac{7.8^*}{27.6}$ | 63 | $\frac{19.4}{72.4}$ | 73 | $\frac{14.4}{78.5}$ | 20 | $\frac{17.9}{21.5}$ | 62 | $\frac{10.0}{93.9}$ | 4 | $\frac{16.0}{6.1}$ | 14 | $\frac{8.5}{82.4}$ | 3 | $\frac{30.0}{17.6}$ |
| 1946-1950 | 24 | $\frac{7.8}{41.4}$ | 34 | $\frac{10.5}{58.6}$ | 58 | $\frac{11.4}{80.6}$ | 14 | $\frac{12.5}{19.4}$ | 60 | $\frac{9.7}{90.9}$ | 6 | $\frac{24.0}{9.1}$ | 22 | $\frac{13.3}{95.7}$ | 1 | $\frac{10.0}{4.3}$ |
| 1951-1955 | 38 | $\frac{12.4}{48.7}$ | 40 | $\frac{12.3}{51.3}$ | 88 | $\frac{17.4}{83.0}$ | 18 | $\frac{16.1}{17.0}$ | 120 | $\frac{19.4}{91.6}$ | 11 | $\frac{44.0}{8.4}$ | 28 | $\frac{17.0}{90.3}$ | 3 | $\frac{30.0}{9.7}$ |
| 1956-1960 | 50 | $\frac{16.3}{52.1}$ | 46 | $\frac{14.2}{47.9}$ | 100 | $\frac{19.7}{79.4}$ | 26 | $\frac{23.2}{20.6}$ | 148 | $\frac{24.0}{98.7}$ | 2 | $\frac{8.0}{1.3}$ | 35 | $\frac{21.2}{92.1}$ | 3 | $\frac{30.0}{7.9}$ |
| 1961-1965 | 45 | $\frac{14.6}{45.5}$ | 54 | $\frac{16.6}{54.5}$ | 96 | $\frac{18.9}{81.4}$ | 22 | $\frac{19.6}{18.6}$ | 123 | $\frac{19.9}{98.4}$ | 2 | $\frac{8.0}{1.6}$ | 30 | $\frac{18.2}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| 1966-1970 | 67 | $\frac{21.8}{59.3}$ | 46 | $\frac{14.2}{40.7}$ | 77 | $\frac{15.2}{86.5}$ | 12 | $\frac{10.7}{13.5}$ | 89 | $\frac{14.4}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 30 | $\frac{18.2}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| 1971-1975 | 59 | $\frac{19.2}{58.4}$ | 42 | $\frac{12.9}{41.6}$ | 15 | $\frac{3.0}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 15 | $\frac{2.4}{100.0}$ | 0 | $\frac{0.0}{0.0}$ | 6 | $\frac{3.6}{100.0}$ | 0 | $\frac{0.0}{0.0}$ |
| Total | 307 | 100.0% | 325 | 100.0% | 507 | 100.0% | 112 | 100.0% | 617 | 100.0% | 25 | 100.0% | 165 | 100.0% | 10 | 100.0% |

*Note: Percentage on top is the column percentage and percentage on the bottom is the row percentage.

3.6.2 Practice Patterns

Respondents who reported treating handicapped child patients were further asked to estimate for their typical month in 1975 how many patients of various types they treated.

The results shown in Table 28 indicate that among dentists who treat handicapped children pedodontists see substantially more of this type of patient than do the other practitioner groups. Also, the pedodontists report seeing on the average as many handicapped adults as do other specialty groups. Still, the data suggest that only about 3 percent of the children seen by pedodontists who treat the handicapped have handicapping conditions.

Practitioners were also asked to estimate how many patients with various types of handicapping conditions they had treated during the same typical month in 1975. Since the relative ranks may be more valid than the actual numbers reported, the data in Table 29 are presented both ways. As can be seen, the conditions seen most frequently by general practitioners are mental retardation, emotional disturbance, cerebral palsy, and cardiac conditions. Those most frequently seen by other specialists are oral cleft, mental retardation, and emotional disturbance. For pedodontists, the most prevalent conditions treated are mental retardation, emotional disturbance, and cardiac conditions. As can be seen, however, relatively small numbers of patients are involved for any one condition (which is why data are presented using both means and medians).

Practitioners were also asked to list the five handicapping conditions that they had treated most often since they began practicing dentistry. As can be seen in Table 30, mental retardation was reported by all three practitioner groups as the most prevalent problem encountered. Cleft palate and cerebral palsy do not appear among the top five for general practitioners, nor does facial trauma for pedodontists nor cardiac disease for other specialists. Not only does mental retardation rank first for all practitioners, but proportionally it makes up a substantial part of all handicapping conditions seen.

For additional perspective those who treated handicapped children were asked to rank 1-8 from a list the kinds of dentistry performed most often on these types of patients. Mean ranks were calculated and then the eight categories were assigned an overall rank (see Table 31). (Other specialists

Table 28

MEDIAN NUMBER OF PATIENTS TREATED IN MONTH BY
TYPE OF PRACTITIONER AND TYPE OF PATIENT

| Median Number of Different Patients Treated in Month | General Practice Sample | Other Specialist Sample | Pedodontist Sample Long Questionnaire | Pedodontist Sample Short Questionnaire |
|--|----------------------------|----------------------------|--|---|
| Handicapped Children (20 years or younger) | 2.45 | 4.16 | 10.08 | 7.85 |
| Non-Handicapped Children | 52.50 | 145.86 | 303.50 | 358.82 |
| Handicapped Adults | 1.43 | 0.36 | 0.27 | 0.20 |
| Non-Handicapped Adults | 122.74 | 36.40 | 0.05 | 0.02 |

Table 29

NUMBER, MEAN, AND MEDIAN OF CHILDREN WITH HANDICAPPING CONDITIONS
TREATED IN MONTH BY TYPE OF PRACTITIONER AND
TYPE OF HANDICAPPING CONDITION

| During Your Typical Month, How Many Children With These Handicapping Con- ditions Did You Treat? | General Practice Sample | | | Other Specialist Sample | | | Pedodontist Sample Long Questionnaire | | | Pedodontist Sample Short Questionnaire | | | | | | | | | | |
|---|-------------------------|------|------|-------------------------|------|------|--|------|--------|---|------|------|------|--------|------|-----|------|---|------|---|
| | (n)* | Mean | Rank | Median | Rank | (n)* | Mean | Rank | Median | Rank | (n)* | Mean | Rank | Median | Rank | | | | | |
| Cerebral Palsy | 264 | 0.50 | 4 | 0.20 | 3 | 434 | 0.45 | 7 | 0.20 | 4 | 519 | 2.38 | 4 | 1.19 | 4 | 140 | 1.89 | 3 | 1.21 | 3 |
| Hemophilia | 269 | 0.08 | 8 | 0.03 | 8 | 446 | 0.09 | 8 | 0.04 | 8 | 534 | 0.37 | 8 | 0.14 | 7 | 155 | 0.28 | 8 | 0.10 | 7 |
| Oral Cleft | 265 | 0.43 | 5 | 0.14 | 5 | 425 | 2.20 | 1 | 0.51 | 2 | 525 | 1.67 | 5 | 0.87 | 5 | 150 | 1.14 | 5 | 0.53 | 5 |
| Emotional Disturbances | 258 | 1.17 | 2 | 0.33 | 2 | 428 | 1.52 | 3 | 0.34 | 3 | 514 | 5.48 | 2 | 2.02 | 2 | 137 | 4.44 | 1 | 1.63 | 2 |
| Mental Retardation | 249 | 1.81 | 1 | 0.95 | 1 | 417 | 1.58 | 2 | 0.83 | 1 | 516 | 5.69 | 1 | 2.67 | 1 | 138 | 4.41 | 2 | 2.39 | 1 |
| Orthopedic Conditions | 264 | 0.23 | 7 | 0.07 | 7 | 439 | 0.82 | 5 | 0.14 | 6 | 528 | 1.20 | 6 | 0.30 | 6 | 148 | 0.83 | 6 | 0.20 | 6 |
| Cardiac Conditions | 266 | 0.53 | 3 | 0.19 | 4 | 438 | 0.56 | 6 | 0.17 | 5 | 518 | 2.49 | 3 | 1.23 | 3 | 142 | 1.69 | 4 | 0.83 | 4 |
| Other (Specify) | 272 | 0.28 | 6 | 0.08 | 6 | 440 | 0.93 | 4 | 0.09 | 7 | 523 | 0.83 | 7 | 0.11 | 8 | 149 | 0.48 | 7 | 0.10 | 7 |

*n is the number of valid cases

Table 30

FIVE MOST FREQUENT CONDITIONS OF HANDICAPPED CHILD
PATIENTS BY TYPE OF PRACTITIONER

| Five Most Frequent Conditions of Handicapped Child Patients | General Practice Sample | Other Specialist Sample | Pedodontist Sample |
|---|----------------------------|----------------------------|-----------------------|
| 1. (Most Frequent) | mental retardation | mental retardation | mental retardation |
| 2. | epilepsy | cleft palate | cerebral palsy |
| 3. | facial trauma | facial trauma | epilepsy |
| 4. | cardiac disease | epilepsy | cleft palate |
| 5. (Least Frequent) | seizures | cerebral palsy | cardiac disease |

Table 31

MEAN AND RANK OF KIND OF DENTISTRY PERFORMED MOST OFTEN ON
HANDICAPPED CHILDREN BY TYPE OF PRACTITIONER AND KIND OF DENTISTRY

| | <u>General Practitioners</u> (N=158) | | <u>Pedodontists</u> | |
|------------------------------|---|------|-----------------------------------|------------------------------------|
| | \bar{X} Rank | Rank | Long (N=377) \bar{X} Rank | Short (N=101) \bar{X} Rank |
| Restorative Dentistry | 1.77 | 1 | 1.43 | 1.60 |
| Endodontics and Pulp Therapy | 4.56 | 4 | 3.54 | 3.83 |
| Oral Surgery | 4.04 | 3 | 3.86 | 3.84 |
| Interceptive Orthodontics | 6.25 | 6 | 5.82 | 5.45 |
| Prosthetics (Removable) | 6.80 | 7 | 7.04 | 6.90 |
| Prosthetics (Fixed) | 7.26 | 8 | 7.26 | 7.10 |
| Periodontics | 5.87 | 5 | 5.74 | 5.86 |
| Preventive | 2.94 | 2 | 2.54 | 2.42 |

were excluded from this comparison after inspection of the data revealed that very few responded to this item.)

Overall, the patterns are very similar for pedodontists and general practitioners. Restorative dentistry ranks first and preventive dentistry ranks second for both groups. The next most frequently reported categories are oral surgery and endodontics/pulp therapy, both ranked closely by the two groups of practitioners.

The long Dental Practices Questionnaire (Appendix B) contained a question asking what condition dentists felt most confident in treating. As can be seen in Table 32, all practitioner groups feel least confident treating hemophiliacs. On the other hand, all three groups feel most confident treating the dental problems of children with orthopedic conditions and the mentally retarded. However, most dentists who responded to this question seem to feel equally confident treating most handicapped children with the exception of hemophiliacs and perhaps children with cardiac conditions, as the ranks indicate.

Also in the long questionnaire dentists were asked which method they used most often in controlling undesirable behavior in children with various handicaps. As can be seen in Table 33, far and away the most frequently used methods regardless of handicapped status or type of practitioner, were behaviour modification and drugs. With one exception these were ranked 1 or 2 by all practitioners, whether the patients were physically or mentally handicapped or had no handicaps. The exception was other specialists, who reported bringing parents into the operatory as their method of choice with mentally handicapped children, followed by drugs and behavior modification/hypnosis.

Questions 24a and 24b on the long questionnaire asked dentists treating handicapped children to indicate which of an extensive list of health care personnel had provided consultation to them in treating such patients during their typical month in 1975. Only 38 percent of the general practitioners who answered these questions reported using such consultants, compared to 59 percent of the other specialist groups and 72 percent of the pedodontists. (Data not shown.) Pediatricians were the most frequently consulted, by a wide margin, by all practitioners. In addition, pedodontists made extensive use of cardiologists, social workers, and hearing and speech therapists, as did general practitioners. The different pattern exhibited by the other specialists seems to reflect the composition of the specialty group, e.g., oral plastic surgeons and other dental specialists.

Table 32

MEAN AND RANK OF TYPE OF HANDICAPPED CHILD MOST CONFIDENTLY
TREATED BY TYPE OF PRACTITIONER AND TYPE OF HANDICAPPING CONDITION

| What Type of Handicapped Child Do You Feel Most Confident Treating ? | General Practice | | | Other Specialist | | | Pedodontist | | |
|--|------------------|------|----|------------------|------|-----|-------------|------|-----|
| | Mean | Rank | N | Mean | Rank | N | Mean | Rank | N |
| Cerebral Palsy | 4.47 | 6 | 95 | 4.41 | 5 | 127 | 3.70 | 4 | 378 |
| Hemophilia | 5.73 | 7 | 91 | 5.76 | 7 | 125 | 5.86 | 7 | 371 |
| Oral Cleft | 3.53 | 3 | 96 | 2.58 | 2 | 128 | 3.46 | 2 | 379 |
| Emotionally Disturbed | 3.79 | 4 | 96 | 4.53 | 6 | 127 | 3.79 | 5 | 380 |
| Mentally Retarded | 2.82 | 1 | 96 | 3.88 | 3 | 126 | 3.45 | 2 | 377 |
| Orthopedic Conditions | 3.02 | 2 | 96 | 2.50 | 1 | 127 | 3.35 | 1 | 377 |
| Cardiac Conditions | 3.96 | 5 | 95 | 4.20 | 4 | 128 | 4.15 | 6 | 379 |

MEAN RANK OF TREATMENT METHOD USED MOST OFTEN IN DEALING WITH UNDESIRABLE BEHAVIOR BY CHILDREN BY TYPE OF PRACTITIONER, TYPE OF HANDICAP, AND TREATMENT METHOD

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One issue of interest was whether pedodontists differ in the amount of training they received in the use of multidisciplinary health manpower in treating handicapped children, in both classroom and clinical contexts. In response to such a question, dentists provided data on how much exposure they had to a variety of health manpower (Question 45).

The results (not shown) suggest that those who treat handicapped children had much more classroom exposure to all types of health manpower than those who do not treat such patients. This was particularly true for pedodontists and other specialists. Also, the types of specialists that were included in classroom training varied across practitioner groups, but the pediatrician, speech and hearing specialist, and child development specialist were reported frequently, as were dental auxiliaries and other dental specialists.

Data relative to clinical training (not shown) indicate that all three groups who treat handicapped children received much more exposure during training than did those who do not treat such patients. The ratios are not as large as they are for classroom exposure, however. Again, if other dental specialists are excluded, the types of manpower exposed to most frequently in clinical training are pediatricians and speech and hearing specialists.

3.6.3 Practice Perceptions

Dental practitioners clearly feel that there are a number of barriers preventing dentists from providing dental care to handicapped children. Most of the respondents listed at least one and many listed two or more. So many different deterrents were listed that 38 categories were used to code responses. Only the first two deterrents listed were coded (few listed more than two) for analysis purposes. Even so, it was necessary to combine categories into seven general classes of responses to make analysis manageable (Table 34).

Among those who do not treat handicapped children one of the deterrents most frequently cited by all three practitioner groups was lack of training about the handicapped. Other deterrents frequently listed were lack of facilities and staff, negative attitudes and beliefs of dentists, and various economic considerations. For example, pedodontists returning long questionnaires who don't treat handicapped children overwhelmingly listed lack of training as the major deterrent, with negative attitudes and economic barriers as distant seconds. Other specialists, on the other hand, listed economic considerations as the biggest deterrent.

Among those who currently treat handicapped children a somewhat different pattern emerged. The single most important deterrent listed by general practitioners was economic. For other specialists, two deterrents were cited frequently: various economic considerations and lack of training. Pedodontists who treat handicapped children, on the other hand, listed four deterrents most frequently: negative attitudes of the dentists, economic considerations, lack of training, and problems of patient management.

Practitioners who were currently treating handicapped children were asked what types of specialized training they felt would be useful in their current practice in relation to treating handicapped children. As was the case with perceived deterrents to treating such children, a variety of types of training were cited. Item analysis of responses resulted in 32 categories which were collapsed into nine broad classes for the purpose of analysis (Table 35).

The two types of training mentioned most frequently by general practitioners who treat handicapped children were anesthesia and pharmacology courses, and psychology courses involving behavior modification and patient management. Other specialists mentioned three types of training with almost

Table 34

NUMBER, PERCENT, AND RANK OF PRACTITIONERS WHO TREAT HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND DETERRENTS TO TREATING HANDICAPPED CHILDREN

| | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample | | | | Pedodontist Sample | | | |
|--|-----------------------------------|--------|---|-----|-----------------------------------|------|-----|--------|--|------|--------|----|---|--------|---|----|
| | Treatment of Handicapped Children | | | | Treatment of Handicapped Children | | | | Long Questionnaire Treatment of Handicapped Children | | | | Short Questionnaire Treatment of Handicapped Children | | | |
| | Yes | Rank | # | No | Yes | Rank | # | No | Yes | Rank | # | No | Yes | Rank | # | No |
| Deterrents to Treating Handicapped Children | | | | | | | | | | | | | | | | |
| No Deterrent * | 6 | - | 4 | - | 5 | - | 0 | - | 7 | - | 0 | - | 2 | - | 0 | - |
| Lack of Training, Education | 58 | 17.1 | 3 | 121 | 35.4 | 1 | 101 | 19.1 | 2 | 19 | 20.2 | 2 | 153 | 19.1 | 3 | 11 |
| Lack of Experience | 29 | 8.5 | 6 | 19 | 5.6 | 6 | 38 | 7.2 | 6 | 5 | 5.3 | 7 | 103 | 12.8 | 5 | 2 |
| Insufficient, Inappropriate Facilities and Resources | 33 | 9.7 | 5 | 84 | 24.6 | 2 | 66 | 12.4 | 5 | 17 | 18.1 | 3 | 48 | 6.0 | 6 | 2 |
| Problems of Patient Management | 59 | 17.4 | 2 | 23 | 6.7 | 5 | 94 | 17.7 | 3 | 17 | 18.1 | 3 | 113 | 14.0 | 4 | 1 |
| Negative Attitudes and Beliefs of the Dentist | 57 | 16.8 | 4 | 28 | 8.2 | 4 | 78 | 14.7 | 4 | 5 | 5.3 | 7 | 181 | 22.6 | 1 | 4 |
| Various Economic Considerations (insurance, malpractice, time) | 95 | 27.9 | 1 | 53 | 15.5 | 3 | 128 | 24.2 | 1 | 22 | 23.4 | 1 | 169 | 21.1 | 2 | 4 |
| Other | 9 | 2.6 | 7 | 14 | 4.1 | 7 | 25 | 4.7 | 7 | 9 | 10.0 | 5 | 34 | 4.2 | 7 | 2 |
| Total | 340 | 100.0% | | 342 | 100.0% | | 530 | 100.0% | | 94 | 100.0% | | 801 | 100.0% | | 26 |
| | | | | | | | | | | | | | 219 | 100.0% | | 9 |

* No Deterrent was not included in the Total.

Table 35

NUMBER, PERCENT, AND RANK OF PRACTITIONERS WHO THINK SPECIALIZED
TRAINING WOULD BE USEFUL IN TREATING HANDICAPPED CHILDREN
BY TYPE OF PRACTITIONER AND TYPE OF TRAINING

| What Type of Specialized Training Would be Useful in Treating Handicapped Children? | General Practice | | | Other Specialist | | | Pedodontist Sample Long Questionnaire | | | Pedodontist Sample Short Questionnaire | | |
|---|------------------|--------|------|------------------|--------|------|--|--------|------|---|--------|------|
| | # | % | Rank | # | % | Rank | # | % | Rank | # | % | Rank |
| None * | 39 | - | - | 56 | - | - | 30 | - | - | 8 | - | - |
| Courses for Auxiliary Personnel | 2 | 1.4 | 7 | 1 | 0.4 | 8 | 6 | 1.4 | 8 | 4 | 3.8 | 7 |
| Pediatric Dentistry | 9 | 6.1 | 5 | 4 | 1.8 | 7 | 35 | 8.4 | 6 | 9 | 8.6 | 5 |
| Hospital or Clinical Training | 26 | 17.7 | 3 | 28 | 12.4 | 5 | 94 | 22.6 | 2 | 24 | 22.8 | 2 |
| Anesthesia and Pharmacology Courses | 42 | 28.6 | 2 | 42 | 18.6 | 4 | 98 | 23.6 | 1 | 27 | 25.7 | 1 |
| Psychology, Behavior Modification and Patient Management Courses | 43 | 29.2 | 1 | 43 | 19.0 | 3 | 38 | 9.1 | 5 | 8 | 7.6 | 6 |
| Courses on Medical Aspects of Handicapping Conditions | 8 | 5.4 | 6 | 47 | 20.8 | 2 | 58 | 13.9 | 4 | 13 | 12.4 | 4 |
| Graduate Courses, Continuing Education, Seminars & Updated Information through Literature | 16 | 10.9 | 4 | 56 | 24.8 | 1 | 79 | 19.0 | 3 | 16 | 15.2 | 3 |
| Preventive Dentistry Education | 1 | 0.7 | 8 | 5 | 2.2 | 6 | 8 | 1.9 | 7 | 4 | 3.8 | 7 |
| Total | 147 | 100.0% | | 226 | 100.0% | | 416 | 100.0% | | 105 | 100.0% | |

*This category has not been included in the total.

equal frequency: psychology courses, courses on medical aspects of handicapping conditions, and graduate courses, continuing education, and updated information sources generally. Pedodontists cited a need for courses on anesthesia and pharmacology most frequently, followed by hospital/clinic training and graduate/continuing education programs.

Perceptions regarding treatment of handicapped children were further explored by asking those practitioners treating such patients whether they considered the income they received from treating handicapped children commensurate with the time required. Somewhat surprisingly, 61 percent of the pedodontists responded in the negative compared to 54 percent of the other specialists and 53 percent of the general practitioners. Why pedodontists, who supposedly are better prepared intellectually and emotionally to treat handicapped children by virtue of training and experience, should respond in this fashion is unclear.

We explored this issue further by cross-tabulating responses to this question by whether respondents reported having 1) clinical training or 2) classroom education on the dental care of handicapped children. (Data not shown.) The relationship between the two types of training and reports by practitioners on whether they feel time spent treating handicapped children is commensurate with income received indicate that in all three practitioner groups about 60 percent responded in the negative. (Data not shown.) In fact, in general those practitioners who reported no clinical or classroom exposure to handicapped patients reported more satisfaction regarding income received versus time expended. It may be that dentists who have acquired skills through special training find that their return on the additional investment is insufficient.

In hopes that the fee schedules used might provide a clue, we examined whether those dentists treating handicapped children used a different fee schedule for these types of patients. Overall, a majority did not. Only 20 percent of the pedodontists reported using a different fee schedule, compared to 19 percent of other specialists and 10 percent of the general practitioners. For additional perspective we cross-tabulated fee schedule and the question on whether income is commensurate with time spent treating handicapped children. The data in Table 36 indicate that among general practitioners, those who use a different fee schedule tend to feel income is commensurate with time. However, among pedodontists and other specialists this pattern does not hold. For both of these

Table 36

NUMBER AND PERCENT OF PRACTITIONERS WHO FEEL INCOME IS COMMENSURATE
WITH TIME SPENT IN TREATMENT OF HANDICAPPED CHILDREN BY TYPE OF
PRACTITIONER AND WHETHER A DIFFERENT FEE SCHEDULE IS USED

Long Questionnaire Only

| If You Use a Different Fee Schedule for Services to Handicapped Children explain how it differs and why | General Practice Sample | | | | Other Specialist Sample | | | | Pedodontist Sample | | | |
|--|----------------------------------|--------|----|-------|----------------------------------|-------|-------|-------|----------------------------------|-------|-------|-------|
| | Income Commensurate With Time | | | | Income Commensurate With Time | | | | Income Commensurate With Time | | | |
| | # | Yes | % | No | # | Yes | % | No | # | Yes | % | No |
| Higher - More Time Required for Treatment | 5 | 45.5 * | 0 | 0.0 | 7 | 36.8 | 12 | 20.7 | 35 | 83.3 | 42 | 43.8 |
| | | 100.0 | | 0.0 | | 36.8 | 63.2 | | | 45.5 | 54.5 | |
| Lower - If Family Unable to Pay | 1 | 9.1 | 6 | 42.9 | 5 | 26.3 | 22 | 37.9 | 0 | 0.0 | 24 | 25.0 |
| | | 14.3 | | 85.7 | | 18.5 | 81.5 | | | 0.0 | 100.0 | |
| Higher - If Away from Office or Hospitalized | 2 | 18.2 | 1 | 7.1 | 0 | 0.0 | 2 | 3.4 | 2 | 4.8 | 5 | 5.2 |
| | | 66.7 | | 33.3 | | 0.0 | 100.0 | | | 28.6 | 71.4 | |
| Management Fee Sometimes Added | 0 | 0.0 | 0 | 0.0 | 1 | 5.3 | 0 | 0.0 | 2 | 4.8 | 6 | 6.3 |
| | | 0.0 | | 0.0 | | 100.0 | 0.0 | | | 25.0 | 75.0 | |
| Set Fee for Service - Time Not Considered | 1 | 9.1 | 0 | 0.0 | 3 | 15.8 | 2 | 3.4 | 1 | 2.3 | 4 | 4.2 |
| | | 100.0 | | 0.0 | | 60.0 | 40.0 | | | 20.0 | 80.0 | |
| Higher if More Difficult | 1 | 9.1 | 1 | 7.1 | 1 | 5.3 | 2 | 3.4 | 2 | 4.8 | 5 | 5.2 |
| | | 50.0 | | 50.0 | | 33.3 | 66.7 | | | 28.6 | 71.4 | |
| Lower - State Agency Pays | 1 | 9.1 | 6 | 42.9 | 2 | 10.5 | 18 | 31.0 | 0 | 0.0 | 10 | 10.4 |
| | | 14.3 | | 85.7 | | 10.0 | 90.0 | | | 0.0 | 100.0 | |
| Total | 11 | 100.0 | 14 | 100.0 | 19 | 100.0 | 58 | 100.0 | 42 | 100.0 | 96 | 100.0 |
| | | 44.0 | | 56.0 | | 24.7 | 75.3 | | | 30.4 | 69.6 | |

*Top percentage is column percentage and bottom percentage is row percentage.

groups, over two-thirds of those who use a different fee schedule report dissatisfaction regarding whether time is commensurate with income received.

Pursuing this issue further, we cross-tabulated how fee schedules differed by whether dentists felt income was commensurate with time required to treat handicapped children. (Data not shown.) Although the numbers are small, general practitioners who charged higher fees for handicapped children felt that income was commensurate with time spent, whereas those who charged lower fees did not. However, for pedodontists and other specialists, even those who charged higher fees felt that income was not commensurate with time spent treating handicapped children. Only in the case where pedodontists reported that higher fees were charged because treating handicapped children required more time, did the percentage who were satisfied even approach parity - 46 percent.

3.7 PRACTITIONER SURVEY RESULTS

1) Procedural

- a) The survey procedures were, on the whole, useful, and the general impression was that the data collected were representative of the target groups. The response rate, although greater than the target rate of 65 percent set by the Office of Management and Budget, was lower than had been desired. It was, however, large enough for statistical purposes. No significant bias was found between respondents and nonrespondents.
- b) In retrospect, the other dental specialty group was not a good comparison group. While the information obtained from the group was useful, the group was too heterogeneous with respect to their treatment of the handicapped patient. While 72 percent of this group treated handicapped patients compared to 44 percent of the general practitioners, there was considerable variation within the groups, with the orthodontist treating the largest number of handicapped patients. Most of the handicapped patients seen by dental specialists were based on referrals from general practitioners and pedodontists.
- c) Another source of limitation regarding the practitioner survey relates to the adequacy of the sampling frame. Some of the limitations of the A.D.A. file as a source of data were: 1) incorrect addresses, 2) persons included who were retired, deceased, or inactive, and 3) misclassification of dental specialists.

2) Substantive

- a) Training experience is closely related to whether or not handicapped children are treated. If practitioners attended a postgraduate pedodontic training program, or received classroom education or clinical training on the treatment of handicapped children, they are much more likely to treat such patients. (Worth noting is the fact that one-fourth of the pedodontists treating handicapped children had not

received postgraduate pedodontic training and 20 to 30 percent reported no training on the treatment of such patients at all.)

- b) Slightly less than half of the general practitioners, 83 percent of other specialists, and 96 percent of the pedodontists surveyed report that they currently treat the dental problems of handicapped children.
- c) Practitioners currently treating handicapped children report treating more such patients during their dental training and are more likely to feel that they received sufficient exposure to these patients during their training. (Eighteen percent of the general practitioners, 38 percent of the other specialists, and 51 percent of the pedodontists feel they had sufficient exposure.)
- d) Dentists treating handicapped children were more likely to report both classroom education and clinical training about the use of multidisciplinary health manpower in the treatment of their patients, and to report using such personnel as consultants in their dental practice.
- e) Handicapped children constitute a larger proportion of the caseload of pedodontists than they do of other practitioners. Still, handicapped children probably constitute less than five percent of the patients seen by pedodontists.
- f) The handicapping conditions seen most frequently by practitioners are mental retardation, emotional disturbance, cerebral palsy, and cardiac conditions.
- g) The types of dentistry performed most frequently on handicapped children are, in order, restorative, preventive, oral surgery, and endodontics/pulp therapy.
- h) Practitioners feel least confident treating hemophiliacs and most confident treating patients with orthopedic conditions and mental retardation.
- i) Far and away the most frequently used methods to control undesirable behavior of children, regardless of their handicapped status, are behavior modification and drugs.

- j) Pediatricians are the most frequently used consultants, by a wide margin, by all three practitioner groups, followed by cardiologists, social workers, and hearing and speech therapists.
- k) Among those who do not treat handicapped children the most frequently cited deterrent is lack of training. For those who treat such patients the barriers cited are economic, lack of training, negative attitudes of dentists, and problems of patient management.
- l) The types of specialized training which practitioners felt would be useful in their treatment of handicapped children were courses on anesthesia and pharmacology, courses on patient management, and hospital/clinic training.
- m) Over half of the practitioners treating handicapped children feel that the income received is not commensurate with the time and effort expended. This was true even when higher fee schedules were charged for handicapped patients.
- n) In general, the more specialized training on treating the handicapped which practitioners have, the more likely they are to report that income is not commensurate with effort expended.

CHAPTER 4. LINKAGE TO PEDODONTIC PROGRAM GRADUATES

4.1 INTRODUCTION

An important component of this overall evaluation study is the linkage between graduate training programs and their graduates. The data presented up to this point have dealt primarily with process elements of the training programs-- numbers of students and faculty, their attitudes and opinions about the training process, and types of exposure during training. This section of the study is an attempt to link these process elements to the activities and opinions of the graduates, a measure of the intermediate level outcomes of the programs. In reporting this phase of the study, emphasis has been given first to a description of the methodological process of linking the programs and graduates, secondly to a presentation of data comparing the graduates by type of program, and finally to the interpretation of results and specification of limitations.

4.2 METHODS OF LINKING PROGRAMS AND GRADUATES

In this study two major components were operationalized, a Site Assessment component and a Dental Practitioner component. (See Chapter 1.) Included in the Dental Practitioner component was a survey of practitioners' knowledge, attitudes, and behavior vis-a-vis the handicapped. (See Chapter 3.) The basic design of the survey was a comparison between general practitioners, pedodontists, and other specialists. Here we are concerned only with a comparison within the pedodontic group. The sample frame for the pedodontic survey was the A.D.A. registry. Rather than take a sample from the approximately 1,162 pedodontists, the entire population was surveyed. One item included in the questionnaire was where the practitioner went to school and the year schooling was completed. This was a key item in the overall evaluation design. Whenever a response was received that did not answer the question, a special follow-up was made. This resulted in a large number of cases that could be directly linked to individual schools. Sole reliance on this data base for references back to schools has two major methodological problems:

- . although it was based on the population of pedodontists, and even though it was the best available at the time, the A.D.A. registry is not a reliable sample frame, and
- . an independent estimate of the number of graduates by each of the 58 graduate pedodontic programs would be crucial as a denominator for estimating response rates and possible errors per program, but this was generally lacking.

However, the other major study component, the Site Assessment, did include a question in Item 1 that requested a complete listing of the name and last known address of each of the graduates between 1965 and 1975. This at least gave the contractor a definitive base to go on for the twelve programs included in the detailed Site Assessment review. As can be seen in Table 37 on page 125, this approach resulted in a listing of 221 graduates from the six funded programs, 63 graduates from the three university-based comparison programs, and 82 graduates from the three hospital-based comparison programs. This listing was then cross-referenced by name with the pedodontic survey listing, which was based on the A.D.A. registry categorization. This cross-referencing resulted in relatively few matches (e.g., 76 out of 221 for the funded programs) and led to a reexamination of both listings. The listing that came from each of the training programs may have inadvertently

Table 37

FOLLOW-UP OF GRADUATES FROM
TWELVE PEDODONTIC PROGRAMS

(Limited to Graduates Between 1965-1975)

| | | <u>Funded Programs</u> | <u>Comparison Programs</u> | |
|-----|---|----------------------------|----------------------------|--------------------------|
| | | | University based | Hospital based |
| | | (6) | (3) | (3) |
| 1) | # of Graduates on List from Program | 221 | 63 | 82* |
| 2) | # of Graduates from Row 1 on A.D.A Registry categorized as Pedodontists | 76 | 13 | 18* |
| 3) | # of Foreign, Academic, Deceased, or Military | 29 | 5 | 11 |
| 4) | # of Graduates on List from Program Not Located in A.D.A . Registry | 19 | 7 | 8 |
| 5) | # of Graduates from Row 1 in Supplement (Row 1 minus Rows 2,3 & 4) | 97 | 36 | 46 |
| 6) | Refusals | 1 | 0 | 1 |
| 7) | Responses to Supplement Follow-up | 72 | 24 | 27 |
| 8) | Responses from Original Pedodontic Practitioner Survey | 63 | 8 | 21 |
| 9) | Program Graduate Responses/All Graduates | $\frac{135}{221} = 61.1\%$ | $\frac{32}{63} = 50.8\%$ | $\frac{48}{82} = 58.5\%$ |
| 10) | Program Graduate Responses/ (All Graduates - Row 3) | $\frac{135}{192} = 70.3\%$ | $\frac{32}{58} = 55.2\%$ | $\frac{48}{71} = 67.6\%$ |

*We were unable to follow up on the graduates of one program independently of the Practitioner Survey because the program didn't supply us with a list of graduates.

excluded a graduate or two, but most likely did not include any nongraduates. The suspected problem is the categorization of specialty within the A.D.A. registry. The problem appears to be in failing to include new graduates in the registry for the first time and/or in subsequent updating after changes in status (e.g., change from student to a dentist, or from a general practitioner to a pedodontist). There were 34 listed graduates that the contractor was unable to locate in the A.D.A. registry at all. As can be seen in Table 37, Row 5, 97 graduates from the six funded programs were located in the A.D.A. registry but were still classified as general practitioners. Consequently, the Practitioner Survey was supplemented with a direct survey of the additional graduates who could be located. The responses to this Supplemental Survey, when added to the original group of responses, resulted in 135 completed questionnaires from funded program graduates, 32 from the university-based comparison programs and 48 from the hospital-based comparison programs.

Since the Supplemental Survey was based on a different sample frame from the original pedodontic sample, further investigation was required before lumping together all of the cases. The geographical practice location of the respondents to the Supplemental Survey appears to be somewhat different from the practice location of all pedodontists (A.D.A. registry as source) or even from that of the respondents to either the long questionnaire or the short questionnaire. Twenty-four percent of the respondents to the Supplemental Survey were located in HEW Region VI, as compared to only 10.2 percent of the population, while only 21.9 percent were located in HEW Region IX as compared to 25.3 percent of the population.

The number of years practiced dentistry by the respondents to the Supplemental Survey was less than that of the respondents to either the long questionnaire or the short questionnaire. Eighty-seven percent of the respondents to the Supplemental Survey have been in dental practice for 10 years or less, compared to only 18 percent of the respondents to the long questionnaire and 21 percent of the respondents to the short questionnaire. Given this major difference, respondents were regrouped by type of pedodontic program graduate and by number of years practiced dentistry. The classification of type of pedodontic program graduate was geared specifically to this evaluation design, adding to the three groups specified earlier three additional groups:

all other university graduate pedodontic program graduates,

- . all other hospital graduate pedodontic program graduates, and
- . non-graduate pedodontists.

As can be seen in Table 38 on page 128, 49.7 percent of the funded program respondents had practiced dentistry for 10 years or less as compared to 47.2 percent of the university-based comparison program respondents and 49.2 percent of the hospital-based comparison program respondents. These percentages are fairly close but are all significantly greater than all three of the other groups.

The Supplemental Survey was based on the Site Assessment - Item 1 listing of the graduates from the twelve study programs. The responses were thus limited to graduates from just these twelve programs and within the last ten years. The Pedodontic Survey was based on the A.D.A. registry and was supposed to be a complete enumeration of pedodontists, which obviously includes many pedodontists who graduated before 1965. It is fairly clear, based on these data sources and the data contained here, that an explicit control along the time dimension is in order. As can be seen in Table 39 on page 129, there is a clear difference in the distribution of respondents with regard to both time since graduation and type of program, by type of response. Of those respondents to the long questionnaire and the short questionnaire, most graduated before 1965 or not at all, while the respondents to the Supplemental Survey all graduated from the twelve programs included in the Site Assessment comparative study and since 1965.

With this distinction in mind, it is necessary to present respondent data within a format that explicitly controls for both type of program graduate and time since graduation. In sum, the data in the next section are presented with these explicit control variables. Interpretation of these data should recognize the fact that the parameter estimates related to the six funded and the six comparison programs for the graduates between 1965-1975 are the more reliable estimates. This is because the response rates are known and are fairly high, while the response rates for the other groups are not even known since the denominators are not known.

Table 38

NUMBER AND PERCENT OF GRADUATES BY TYPE OF PROGRAM
AND TOTAL YEARS PRACTICED DENTISTRY

| Total Years Practiced Dentistry | Funded Program | | University Based | | Hospital Based | | Other University | | Other Hospital | | Non-Graduate Pedodontists | |
|---------------------------------------|-------------------|--------|---------------------|--------|-------------------|--------|---------------------|--------|-------------------|--------|------------------------------|--------|
| | # | % | # | % | # | % | # | % | # | % | # | % |
| 0-5 | 45 | 21.1 | 10 | 18.9 | 12 | 17.9 | 14 | 6.1 | 9 | 11.1 | 0 | 0.0 |
| 6-10 | 61 | 28.6 | 15 | 28.3 | 21 | 31.3 | 55 | 24.1 | 22 | 27.2 | 0 | 0.0 |
| 11-15 | 36 | 16.9 | 7 | 13.2 | 22 | 32.8 | 59 | 25.8 | 14 | 17.3 | 59 | 19.4 |
| 16-20 | 28 | 13.1 | 11 | 20.7 | 6 | 9.0 | 38 | 16.8 | 16 | 19.7 | 73 | 24.0 |
| 21-25 | 21 | 9.9 | 9 | 16.9 | 5 | 7.5 | 26 | 11.4 | 6 | 7.4 | 101 | 33.2 |
| 26-30 | 8 | 3.8 | 1 | 1.9 | 0 | 0.0 | 19 | 8.3 | 7 | 8.6 | 39 | 12.8 |
| 30+ | 13 | 6.1 | 0 | 0.0 | 1 | 1.5 | 15 | 6.6 | 6 | 7.4 | 28 | 9.2 |
| N.A. | 1 | 0.5 | 0 | 0.0 | 0 | 0.0 | 2 | 0.9 | 1 | 1.2 | 4 | 1.3 |
| Total | 213 | 100.0% | 53 | 100.0% | 67 | 100.0% | 228 | 100.0% | 81 | 100.0% | 304 | 100.0% |

Table 39

NUMBER AND PERCENT OF GRADUATES BY TIME OF GRADUATION,
TYPE OF QUESTIONNAIRE ANSWERED, AND TYPE OF PROGRAM

| | Responses to Long Q | | | Responses to Short Q | | | Supplemental Program | | |
|---|---------------------|--------|--------------------|----------------------|-----|--------------------|----------------------|--------|--------------------|
| | Time of Graduation | | | Time of Graduation | | | Time of Graduation | | |
| | # | % | Before 1965 - 1975 | # | % | Before 1965 - 1975 | # | % | Before 1965 - 1975 |
| Funded Programs | 59 | 12.9 | 46 | 25.6 | 19 | 15.1 | 17 | 28.8 | - |
| University Based Comparison Programs | 14 | 3.1 | 4 | 2.2 | 7 | 5.6 | 4 | 6.8 | - |
| Hospital Based Comparison Programs | 17 | 3.7 | 19 | 10.6 | 2 | 1.6 | 2 | 3.4 | - |
| Other University Graduate Pedodontic Programs | 90 | 19.7 | 83 | 46.1 | 30 | 23.8 | 25 | 42.4 | - |
| Other Hospital Graduate Pedodontic Programs | 40 | 8.7 | 28 | 15.6 | 2 | 1.6 | 11 | 18.6 | - |
| Non-Graduate Pedodontists | 238 | 52.0 | - | - | 66 | 52.4 | - | - | - |
| Total | 458 | 100.0% | 180 | 100.0% | 126 | 100.0% | 59 | 100.0% | 123 |
| | *1. | | *1. | | *2. | | *2. | | 100.0% |

Note: 1. 12 respondents did not answer question .
2. 6 respondents did not answer question .

4.3 COMPARISON OF GRADUATES BY TYPE OF PROGRAM

The data in Table 40 clearly indicate no difference between the various groups, of those who graduated either before or after 1965, as regards the treatment of children. Essentially all do so. A somewhat different pattern emerges, as can be seen in Table 41, in terms of whether handicapped children are treated. Somewhat fewer of those who graduated before 1965 from funded programs reported treating handicapped children than did graduates of other programs. However, more recent graduates of the funded programs almost all reported treating handicapped children, and there is essentially no difference between the various training programs in this respect. Virtually all reported treating handicapped children.

Only about one-half of those who graduated prior to 1965 from the funded programs (54 percent) felt that they had sufficient exposure to handicapped children during their dental training. This pattern was fairly typical across the various comparison groups, as can be seen in Table 42. The one exception was the university-based comparison program, with about 43 percent. However, almost 90 percent of the 1965-1975 graduates of funded programs reported that they felt their exposure to handicapped children had been sufficient. Although this was a considerable increase in both absolute and relative terms, more recent graduates of all programs felt they had received sufficient exposure to handicapped children (an increase of 25-30 percentage points was common).

Graduates of funded programs before 1965 ranked in the lower echelon proportionally in reporting classroom education on treatment of handicapped children. However, as can be seen in Table 43, all groups recorded a substantial increase among 1965-1975 graduates, with graduates of funded programs ranking first in this regard, although differences between the groups were not pronounced.

Pedodontists graduating prior to 1965 from funded programs ranked somewhat lower proportionally than other groups in reporting clinical training on treatment of handicapped children. Funded program graduates in the more recent period ranked at the top in this regard. However, as can be seen in Table 44, there were substantially no differences among the various programs for the later training period; essentially all reported clinical training on the dental treatment of handicapped children.

Table 40

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO TREAT CHILDREN
BY TYPE OF PROGRAM AND TIME OF GRADUATION

Graduated Before 1965

| Do You Treat Children? | Funded Programs # | % | University Based | | Hospital Based | | Other (1) University Graduate | | Other (1) Hospital Graduate | | Non-Graduate Pedodontists # | (1) % |
|---------------------------|-------------------------|--------|---------------------|--------|-------------------|--------|-------------------------------------|--------|-----------------------------------|--------|-----------------------------------|----------|
| | | | # | % | # | % | # | % | # | % | | |
| Yes | 78 | 100.0 | 21 | 100.0 | 19 | 100.0 | 119 | 99.2 | 42 | 100.0 | 303 | 99.7 |
| No | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.8 | 0 | 0.0 | 1 | 0.3 |
| Total | 78 | 100.0% | 21 | 100.0% | 19 | 100.0% | 120 | 100.0% | 42 | 100.0% | 304 | 100.0% |

Graduated 1965 - 1975

| | | | | | | | | | | | | |
|-------|-----|--------|----|--------|----|--------|-----|--------|----|--------|---|------|
| Yes | 133 | 100.0 | 32 | 100.0 | 47 | 97.9 | 108 | 100.0 | 38 | 97.4 | 0 | 0.0 |
| No | 0 | 0.0 | 0 | 0.0 | 1 | 2.1 | 0 | 0.0 | 1 | 2.6 | 0 | 0.0 |
| Total | 133 | 100.0% | 32 | 100.0% | 48 | 100.0% | 108 | 100.0% | 39 | 100.0% | 0 | 0.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Table 41

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO TREAT HANDICAPPED
CHILDREN BY TYPE OF PROGRAM AND TIME OF GRADUATION

| Do You Treat Handicapped Children? | Graduated Before 1965 | | | | | | | | | | | |
|--|-----------------------|--------|----|---|--------|----|---|--------|----|---|-----|--|
| | Funded | | | University Based Comparison Programs | | | Hospital Based Comparison Programs | | | Other (1) University Graduate Pedodontic Programs | | |
| | # | % | # | # | % | # | # | % | # | # | % | Non-Graduate Pedodontists (1) # |
| Yes | 74 | 94.9 | 21 | 100.0 | 100.0 | 19 | 100.0 | 100.0 | 42 | 100.0 | 276 | 91.1 |
| No | 4 | 5.1 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0 | 0.0 | 27 | 8.9 |
| Total | 78 | 100.0% | 21 | 100.0% | 100.0% | 19 | 100.0% | 100.0% | 42 | 100.0% | 303 | 100.0% |
| | Graduated 1965 - 1975 | | | | | | | | | | | |
| | Funded | | | University Based Comparison Programs | | | Hospital Based Comparison Programs | | | Other (1) University Graduate Pedodontic Programs | | |
| | # | % | # | # | % | # | # | % | # | # | % | Non-Graduate Pedodontists (1) # |
| Yes | 131 | 99.2 | 27 | 100.0 | 100.0 | 45 | 97.8 | 100.0 | 38 | 100.0 | 0 | 0.0 |
| No | 1 | 0.8 | 0 | 0.0 | 0.0 | 1 | 2.2 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 132 | 100.0% | 27 | 100.0% | 100.0% | 46 | 100.0% | 100.0% | 38 | 100.0% | 0 | 0.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Table 42

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO HAD SUFFICIENT
EXPOSURE TO HANDICAPPED CHILDREN DURING TRAINING
BY TYPE OF PROGRAM AND TIME OF GRADUATION

| Did You Have Sufficient Exposure to Handi- capped Children During Training ? | Graduated Before 1965 | | | | | | | | | | | |
|--|-----------------------|--------|----|---|----|--------|---|--------|----|---|-----|--------|
| | Funded | | | University Based Comparison Programs | | | Hospital Based Comparison Programs | | | Other (1) University Graduate Pedodontic Programs | | |
| | # | % | # | # | % | # | # | % | # | % | # | % |
| Yes | 42 | 54.5 | 9 | 42.9 | 10 | 55.6 | 76 | 64.4 | 29 | 61.7 | 69 | 24.2 |
| No | 35 | 45.5 | 12 | 57.1 | 8 | 44.4 | 42 | 35.6 | 18 | 38.3 | 216 | 75.8 |
| Total | 77 | 100.0% | 21 | 100.0% | 18 | 100.0% | 118 | 100.0% | 47 | 100.0% | 285 | 100.0% |
| Graduated 1965 - 1975 | | | | | | | | | | | | |
| Yes | 119 | 88.1 | 24 | 77.4 | 34 | 70.8 | 86 | 80.4 | 35 | 92.1 | 0 | 0.0 |
| No | 16 | 11.9 | 7 | 22.6 | 14 | 29.2 | 21 | 19.6 | 3 | 7.9 | 0 | 0.0 |
| Total | 135 | 100.0% | 31 | 100.0% | 48 | 100.0% | 107 | 100.0% | 38 | 100.0% | 0 | 0.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Table 43

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO RECEIVED
CLASSROOM EDUCATION REGARDING TREATMENT OF HANDICAPPED
CHILDREN BY TYPE OF PROGRAM AND TIME OF GRADUATION

| Did You Receive Classroom Education Regarding Treatment of Handicapped Children? | Graduated Before 1965 | | | | | | | | | | | |
|--|-----------------------|--------|----|--------|--------------------------------------|--------|-----|--------|------------------------------------|--------|-----|---------|
| | Funded Programs | | | | University Based Comparison Programs | | | | Hospital Based Comparison Programs | | | |
| | # | % | # | % | # | % | # | % | # | % | # | % |
| Yes | 67 | 85.9 | 18 | 85.7 | 19 | 100.0 | 111 | 93.3 | 32 | 80.0 | 173 | 57.5 |
| No | 11 | 14.1 | 3 | 14.3 | 0 | 0.0 | 8 | 6.7 | 8 | 20.0 | 128 | 42.5 |
| Total | 78 | 100.0% | 21 | 100.0% | 19 | 100.0% | 119 | 100.0% | 40 | 100.0% | 301 | 100.0 % |
| Graduated 1965 - 1975 | | | | | | | | | | | | |
| Yes | 133 | 99.3 | 30 | 96.8 | 46 | 95.8 | 106 | 98.1 | 36 | 94.7 | 0 | 0.0 |
| No | 1 | 0.7 | 1 | 3.2 | 2 | 4.2 | 2 | 1.9 | 2 | 5.3 | 0 | 0.0 |
| Total | 134 | 100.0% | 31 | 100.0% | 48 | 100.0% | 108 | 100.0% | 38 | 100.0% | 0 | 0.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Table 44

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO RECEIVED
CLINICAL TRAINING REGARDING TREATMENT OF HANDICAPPED CHILDREN BY
TYPE OF PROGRAM AND TIME OF GRADUATION

| Did You Receive Clinical Training Regarding Treat- ment of Handi- capped Children? | Graduated Before 1965 | | | | | | | | | |
|--|-----------------------|--------|---------------------|--------|-------------------|--------|-------------------------------------|--------|-----------------------------------|--------|
| | Funded | | University Based | | Hospital Based | | Other (1) University Graduate | | Other (1) Hospital Graduate | |
| | # | % | # | % | # | % | # | % | # | % |
| Yes | 62 | 79.5 | 16 | 76.2 | 18 | 94.7 | 104 | 87.4 | 36 | 90.0 |
| No | 16 | 20.5 | 5 | 23.8 | 1 | 5.3 | 15 | 12.6 | 4 | 10.0 |
| Total | 78 | 100.0% | 21 | 100.0% | 19 | 100.0% | 119 | 100.0% | 40 | 100.0% |
| Non-Graduate Pedodontists | | | | | | | | | | |
| Yes | 135 | 100.0 | 31 | 96.8 | 47 | 97.9 | 107 | 100.0 | 38 | 100.0 |
| No | 0 | 0.0 | 1 | 3.2 | 1 | 2.1 | 0 | 0.0 | 0 | 0.0 |
| Total | 135 | 100.0% | 32 | 100.0% | 48 | 100.0% | 107 | 100.0% | 38 | 100.0% |
| Pedodontists | | | | | | | | | | |
| Yes | 135 | 100.0 | 31 | 96.8 | 47 | 97.9 | 107 | 100.0 | 38 | 100.0 |
| No | 0 | 0.0 | 1 | 3.2 | 1 | 2.1 | 0 | 0.0 | 0 | 0.0 |
| Total | 135 | 100.0% | 32 | 100.0% | 48 | 100.0% | 107 | 100.0% | 38 | 100.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Pedodontists graduating from funded programs prior to 1965 reported seeing fewer handicapped children as patients during their training than did graduates of several of the other programs. University-based program graduates from the funded programs during 1965-1975 reported substantially more such patients than did graduates of the two other comparison groups (only the 1965-1975 graduates of other hospital-based programs ranked higher in this regard). However, most groups again registered substantial increases for students graduating in more recent years, as can be seen in Table 45.

As can be seen in Table 46, whether the comparison is made of those who graduated before 1965 or 1965-1975, there is essentially no difference between graduates of funded programs and other programs relative to the type of specialized training that would be useful in treating handicapped children. Graduates of all the programs report that hospital or clinical training and anesthesia or pharmacology courses would be most useful. This same pattern held for pre-1965 graduates and 1965-1975 graduates, although the pattern was somewhat clearer for the latter group.

An interesting comparison involves the question of whether practitioners felt income was commensurate with time spent treating handicapped children. In general, pedodontists graduating before 1965 felt that it was not, as shown in Table 47. Only 30 percent of the funded program graduates, for example, replied in the affirmative. Essentially the same pattern held for 1965-1975 graduates: less than half of the practitioners felt income was commensurate with time spent. However, for graduates of funded programs there was a marked increase in those who replied in the affirmative, from 30 to 43 percent. This type of increase was not true for graduates of any other program.

Regarding perceived deterrents to treating handicapped children, similar patterns emerged for both earlier (pre-1965) and later graduates and across all types of training programs. As can be seen in Table 48, the three most frequently mentioned deterrents were lack of training or education, negative attitudes of the dentist, and various economic factors. This pattern was more clear-cut for more recent graduates, with a somewhat more diffuse set of deterrents listed by earlier graduates (including problems of patient management).

Pedodontists who graduated from funded programs prior to 1965 reported more frequently than graduates of other programs that their fee schedule for handicapped children was different.

Table 45

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO TREATED HANDICAPPED CHILDREN DURING TRAINING BY TYPE OF PROGRAM, NUMBER OF HANDICAPPED CHILDREN TREATED DURING TRAINING, AND TIME OF GRADUATION

| Graduated Before 1965 | | | | | | | | | | | | |
|--|-----------------|--------|--------------------------------------|--------|------------------------------------|--------|---|--------|---|--------|-------------------------------|--------|
| Number of Handicapped Children Treated During Training | Funded Programs | | University-Based Comparison Programs | | Hospital-Based Comparison Programs | | Other (1) University Graduate Pedodontic Programs | | Other (1) Hospital Graduate Pedodontic Programs | | (1) Non-Graduate Pedodontists | |
| | # | % | # | % | # | % | # | % | # | % | # | % |
| None | 6 | 9.1 | 1 | 6.7 | 0 | 0.0 | 1 | 1.0 | 3 | 8.6 | 69 | 35.8 |
| 1-5 | 7 | 10.6 | 1 | 6.7 | 3 | 17.6 | 12 | 11.5 | 1 | 2.9 | 48 | 24.9 |
| 6-10 | 9 | 13.6 | 2 | 13.3 | 0 | 0.0 | 5 | 4.8 | 1 | 2.9 | 19 | 9.8 |
| 11-20 | 7 | 10.6 | 6 | 40.0 | 1 | 5.9 | 12 | 11.5 | 2 | 5.7 | 13 | 6.7 |
| 21-50 | 9 | 13.6 | 2 | 13.3 | 2 | 11.8 | 16 | 15.4 | 5 | 14.3 | 12 | 6.2 |
| 51 or more | 28 | 42.4 | 3 | 20.0 | 11 | 64.7 | 58 | 55.8 | 23 | 65.7 | 32 | 16.6 |
| Total | 66 | 100.0% | 15 | 100.0% | 17 | 100.0% | 104 | 100.0% | 35 | 100.0% | 193 | 100.0% |
| Graduated 1965-1975 | | | | | | | | | | | | |
| None | 0 | 0.0 | 0 | 0.0 | 1 | 2.2 | 0 | 0.0 | 1 | 2.6 | 0 | 0.0 |
| 1-5 | 1 | 0.8 | 0 | 0.0 | 2 | 4.3 | 6 | 6.0 | 0 | 0.0 | 0 | 0.0 |
| 6-10 | 6 | 4.5 | 1 | 2.9 | 5 | 10.9 | 6 | 6.0 | 1 | 2.6 | 0 | 0.0 |
| 11-20 | 9 | 6.8 | 4 | 11.4 | 9 | 19.6 | 7 | 7.0 | 1 | 2.6 | 0 | 0.0 |
| 21-50 | 20 | 15.2 | 10 | 28.6 | 17 | 37.0 | 11 | 10.8 | 3 | 7.7 | 0 | 0.0 |
| 51 or more | 96 | 72.7 | 20 | 57.1 | 12 | 26.1 | 71 | 70.2 | 33 | 84.6 | 0 | 0.0 |
| Total | 132 | 100.0% | 35 | 100.0% | 46 | 100.0% | 101 | 100.0% | 39 | 100.0% | 0 | 0.0% |

(1) See note on Page 127 regarding reliability of these three columns.

Table 46

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO THINK SPECIALIZED
TRAINING WOULD BE USEFUL IN TREATING HANDICAPPED CHILDREN
BY TYPE OF PROGRAM, TYPE OF SPECIALIZED TRAINING, AND TIME OF GRADUATION

Graduated Before 1965

| What Type of Specialized Training Useful in Treating Handicapped Children? | Funded Programs | | University- Based Comparison Programs | | Hospital- Based Comparison Programs | | Other (1) University Graduate Pedodontic Programs | | Other (1) Hospital Graduate Pedodontic Programs | | (1) Non-Graduate Pedodontists | |
|---|--------------------|--------|--|--------|--|--------|---|--------|---|--------|-------------------------------------|--------|
| | # % | | # % | | # % | | # % | | # % | | # % | |
| | # | % | # | % | # | % | # | % | # | % | # | % |
| None * | 9 | - | 2 | - | 1 | - | 15 | - | 4 | - | 27 | - |
| Courses for Auxiliaries | 2 | 4.3 | 0 | 0.0 | 0 | 0.0 | 1 | 1.4 | 2 | 8.0 | 1 | 0.6 |
| Pediatric Dentistry | 3 | 6.5 | 1 | 7.1 | 0 | 0.0 | 2 | 2.8 | 4 | 16.0 | 5 | 2.9 |
| Hospital or Clinical | 13 | 28.3 | 2 | 14.3 | 2 | 18.2 | 16 | 22.2 | 4 | 16.0 | 45 | 26.0 |
| Anesthesia, Pharmacology | 11 | 23.9 | 4 | 28.6 | 3 | 27.3 | 17 | 23.6 | 6 | 24.0 | 46 | 26.6 |
| Psychology Courses | 4 | 8.7 | 2 | 14.3 | 2 | 18.2 | 5 | 7.0 | 1 | 4.0 | 19 | 11.0 |
| Medical Aspects | 5 | 10.9 | 0 | 0.0 | 1 | 9.1 | 11 | 15.3 | 5 | 20.0 | 23 | 13.3 |
| Continuing Education | 5 | 10.9 | 5 | 35.7 | 3 | 27.3 | 15 | 20.8 | 3 | 12.0 | 25 | 14.4 |
| Preventive Dentistry | 3 | 6.5 | 0 | 0.0 | 0 | 0.0 | 2 | 2.8 | 0 | 0.0 | 3 | 1.7 |
| Other | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 4.2 | 0 | 0.0 | 6 | 3.5 |
| Total | 46 | 100.0% | 14 | 100.0% | 11 | 100.0% | 72 | 100.0% | 25 | 100.0% | 173 | 100.0% |

Graduated 1965 - 1975

| | | | | | | | | | | | | |
|-----------------------------|-----|--------|----|--------|----|--------|----|--------|----|--------|---|------|
| None * | 12 | - | 5 | - | 7 | - | 1 | - | 4 | - | - | - |
| Courses for Auxiliaries | 2 | 1.9 | 0 | 0.0 | 0 | 0.0 | 2 | 2.6 | 0 | 0.0 | 0 | 0.0 |
| Pediatric Dentistry | 14 | 13.5 | 3 | 12.0 | 3 | 7.3 | 15 | 19.5 | 2 | 8.3 | 0 | 0.0 |
| Hospital or Clinical | 26 | 25.0 | 7 | 28.0 | 9 | 22.0 | 19 | 24.7 | 3 | 12.5 | 0 | 0.0 |
| Anesthesia, Pharmacology | 22 | 21.2 | 5 | 20.0 | 12 | 29.3 | 15 | 19.5 | 6 | 25.0 | 0 | 0.0 |
| Psychology Courses | 6 | 5.8 | 1 | 4.0 | 4 | 9.8 | 6 | 7.8 | 4 | 16.7 | 0 | 0.0 |
| Medical Aspects | 17 | 16.3 | 4 | 16.0 | 6 | 14.6 | 9 | 11.7 | 3 | 12.5 | 0 | 0.0 |
| Continuing Education | 14 | 13.5 | 4 | 16.0 | 5 | 12.2 | 9 | 11.7 | 5 | 20.8 | 0 | 0.0 |
| Preventive Dentistry | 3 | 2.9 | 0 | 0.0 | 1 | 2.4 | 1 | 1.3 | 0 | 0.0 | 0 | 0.0 |
| Other | 0 | 0.0 | 1 | 4.0 | 1 | 2.4 | 1 | 1.3 | 1 | 4.2 | 0 | 0.0 |
| Total | 104 | 100.0% | 25 | 100.0% | 41 | 100.0% | 77 | 100.0% | 24 | 100.0% | 0 | 0.0% |

* This category has not been included in the total.

(1) See note on Page 127 regarding reliability of these three columns.

Table 47

NUMBER OF PEDODONTIC GRADUATES WHO THINK INCOME IS COMMENSURATE
WITH TIME SPENT TREATING HANDICAPPED CHILDREN
BY TYPE OF PROGRAM AND TIME OF GRADUATION

| Income Commensurate With Time Spent Treating Handi- capped Children | Graduated Before 1965 | | | | | | | | | |
|---|-----------------------|--------|---|--------|---|--------|---|--------|---|--------|
| | Funded | | University Based Comparison Programs | | Hospital Based Comparison Programs | | Other (1) University Graduate Pedodontic Programs | | Other (1) Hospital Graduate Pedodontic Programs | |
| | # | % | # | % | # | % | # | % | # | % |
| Yes | 21 | 30.4 | 10 | 52.6 | 7 | 38.9 | 47 | 44.3 | 12 | 35.3 |
| No | 48 | 65.6 | 9 | 47.4 | 11 | 61.1 | 59 | 55.7 | 22 | 64.7 |
| Total | 69 | 100.0% | 19 | 100.0% | 18 | 100.0 | 106 | 100.0% | 34 | 100.0% |
| | | | | | | | | | | |
| | Graduated 1965 - 1975 | | | | | | | | | |
| | Funded | | University Based Comparison Programs | | Hospital Based Comparison Programs | | Other (1) University Graduate Pedodontic Programs | | Other (1) Hospital Graduate Pedodontic Programs | |
| | # | % | # | % | # | % | # | % | # | % |
| Yes | 56 | 43.1 | 9 | 34.5 | 15 | 37.5 | 46 | 44.7 | 13 | 35.1 |
| No | 74 | 56.9 | 17 | 65.4 | 25 | 62.5 | 57 | 55.3 | 24 | 64.9 |
| Total | 130 | 100.0% | 26 | 100.0% | 40 | 100.0% | 103 | 100.0% | 37 | 100.0% |
| | | | | | | | | | | |

(1) See note on Page 127 regarding reliability of these three columns.

Table 48

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHO AGREE WITH
 **DETERRENTS TO TREATING HANDICAPPED CHILDREN BY TYPE OF PROGRAM,
 TYPE OF DETERRENT, AND TIME OF GRADUATION

Graduated Before 1965

| Deterrents to Treating Handicapped Children | Funded Programs | | University- Based Comparison Programs | | Hospital- Based Comparison Programs | | Other (1) University Graduate Pedodontic Programs | | Other (1) Hospital Graduate Pedodontic Programs | | (1) Non-Graduate Pedodontists | |
|--|--------------------|--------|--|--------|--|--------|---|--------|---|--------|-------------------------------------|--------|
| | # | % | # | % | # | % | # | % | # | % | # | % |
| No Deterrent* | 1 | - | 1 | - | - | - | - | - | - | - | 3 | - |
| Lack of Training, Education | 22 | 21.6 | 3 | 11.5 | 6 | 22.2 | 42 | 25.4 | 17 | 32.7 | 78 | 22.7 |
| Lack of Experience | 10 | 9.8 | 1 | 3.8 | 4 | 14.8 | 22 | 13.3 | 5 | 9.6 | 30 | 8.7 |
| Insufficient, Inappropriate Facilities | 5 | 4.9 | 5 | 19.2 | 3 | 11.1 | 3 | 1.8 | 3 | 5.8 | 57 | 16.6 |
| Problems of Patient Management | 16 | 15.7 | 7 | 26.9 | 2 | 7.4 | 28 | 17.0 | 3 | 5.8 | 65 | 18.9 |
| Negative Atti- tudes of Dentist | 24 | 23.5 | 5 | 19.2 | 8 | 29.6 | 36 | 21.8 | 11 | 21.1 | 95 | 27.7 |
| Various Economic Factors | 23 | 22.5 | 4 | 15.4 | 2 | 7.4 | 29 | 17.6 | 13 | 25.0 | 18 | 5.2 |
| Other | 2 | 2.0 | 1 | 3.8 | 2 | 7.4 | 5 | 3.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 102 | 100.0% | 26 | 100.0% | 27 | 100.0% | 165 | 100.0% | 52 | 100.0% | 343 | 100.0% |

Graduated 1965 - 1975

| | | | | | | | | | | | | |
|--|-----|--------|----|--------|----|--------|-----|--------|----|--------|---|------|
| No Deterrent* | - | - | - | - | - | - | - | - | 2 | - | - | - |
| Lack of Training, Education | 40 | 22.5 | 12 | 30.0 | 10 | 13.5 | 25 | 16.9 | 7 | 13.2 | 0 | 0.0 |
| Lack of Experience | 32 | 17.9 | 5 | 12.5 | 11 | 14.9 | 27 | 18.2 | 7 | 13.2 | 0 | 0.0 |
| Insufficient, Inappropriate Facilities | 9 | 5.1 | 0 | 0.0 | 4 | 5.4 | 7 | 4.7 | 4 | 7.5 | 0 | 0.0 |
| Problems of Patient Management | 26 | 14.6 | 4 | 10.0 | 6 | 8.1 | 21 | 14.2 | 10 | 18.9 | 0 | 0.0 |
| Negative Atti- tudes of Dentist | 34 | 19.1 | 9 | 22.5 | 22 | 29.7 | 31 | 20.9 | 16 | 30.2 | 0 | 0.0 |
| Various Economic Factors | 35 | 19.7 | 9 | 22.5 | 17 | 22.9 | 30 | 20.3 | 6 | 11.3 | 0 | 0.0 |
| Other | 2 | 1.1 | 1 | 2.5 | 4 | 5.4 | 7 | 4.7 | 3 | 5.7 | 0 | 0.0 |
| Total | 178 | 100.0% | 40 | 100.0% | 74 | 100.0% | 148 | 100.0% | 53 | 100.0% | 0 | 0.0% |

*This category has not been included in the total.

**First and second deterrent listed.

(1) See note on Page 127 regarding reliability of these three columns.

However, as can be seen in Table 49, later graduates of these funded programs reported less frequently that their fee schedule for the handicapped differed. Four out of five graduates of funded programs use a standard fee schedule for all patients, a much higher proportion than is reported by graduates of either the university-based or hospital-based training programs.

Table 49

NUMBER AND PERCENT OF PEDODONTIC GRADUATES WHOSE FEE SCHEDULE
DIFFERS FOR HANDICAPPED CHILDREN BY TYPE OF PROGRAM AND TIME OF GRADUATION

Graduated Before 1965

| Does Your Fee Schedule Differ for Handicapped Children? | Funded Programs | | | University Based Comparison Programs | | | Hospital Based Comparison Programs | | | Other (1) University Graduate Pedodontic Programs | | | Other (1) Hospital Graduate Pedodontic Programs | | | Non-Graduate Pedodontists # | % |
|--|--------------------|--------|----|---|----|--------|---|--------|----|---|-----|--------|---|---|---|-----------------------------------|---|
| | # | % | # | # | % | # | # | % | # | # | % | # | # | % | # | | |
| Yes | 19 | 26.8 | 2 | 10.5 | 0 | 0.0 | 23 | 21.5 | 10 | 24.4 | 54 | 20.0 | | | | | |
| No | 52 | 73.2 | 17 | 89.5 | 18 | 100.0 | 84 | 78.5 | 31 | 75.6 | 216 | 80.0 | | | | | |
| Total | 71 | 100.0% | 19 | 100.0% | 18 | 100.0% | 107 | 100.0% | 41 | 100.0% | 270 | 100.0% | | | | | |

Graduated 1965 - 1975

| | | | | | | | | | | | | | | | | | |
|-------|----|--------|----|--------|----|--------|-----|--------|----|--------|---|------|--|--|--|--|--|
| Yes | 13 | 19.7 | 5 | 38.5 | 17 | 54.8 | 23 | 21.9 | 5 | 13.2 | 0 | 0.0 | | | | | |
| No | 53 | 80.3 | 8 | 61.5 | 14 | 45.2 | 82 | 78.1 | 33 | 86.8 | 0 | 0.0 | | | | | |
| Total | 66 | 100.0% | 13 | 100.0% | 31 | 100.0% | 105 | 100.0% | 38 | 100.0% | 0 | 0.0% | | | | | |

(1) See note on Page 127 regarding reliability of these three columns.

4.4 LINKAGE RESULTS

1) Procedural

- a) Although problems were encountered in the process of linking data from individual programs and practitioners, it was possible to relate graduate practitioners back to individual pedodontic programs.

2) Substantive

- a) Overall, there appear to be few differences when graduates of the six funded pedodontic training programs are compared to graduates of other programs. Where differences do exist, generally they are small and relate primarily to attitudinal dimensions. For example, more pronounced differences were observed in regard to two variables: later graduates (1965-1975) of the funded programs more often reported that they felt income was commensurate with time spent treating handicapped children, and less often reported use of a different fee schedule for handicapped children. Graduates of the funded programs also reported treating more handicapped children during their pedodontic training than did graduates of other programs. Beyond these variables, however, there were no significant differences among the practitioner groups.
- b) A comparison of earlier (pre-1965) and later (1965-1975) graduates of the various training programs suggests that training support has had an impact on the six funded programs. However, favorable changes occurred in each of these measures across all pedodontic program graduates.
- c) The overall impression generated is that the graduates of the funded programs, before funding was available, received less adequate training than did the other program graduates (as indicated by the variables used in the comparisons). After training support became available, these differences largely disappeared and, in fact, there was a slight reversal, with funded program graduates presenting the more advantageous profile. A second impression was

that the overall quality of pedodontic training has substantially increased across all of the training programs for which data were acquired (based on responses by the program graduates).

5. OVERALL CONCLUSIONS AND RECOMMENDATIONS

5.1 OVERALL CONCLUSIONS

- 1) The general evaluative approach was useful, and this specific application was successful in terms of evaluating the primary elements of short-term and intermediate goals of the training grant program.
- 2) The lack of financial data at the program level constrained a detailed economic or cost-effectiveness analysis.
- 3) Each of the programs complied with the professional guidelines for accreditation. The guidelines allow for individual programs to define how they will comply with the generally agreed upon objectives contained in the guidelines. The result is a great deal of diversity of operation among programs.
- 4) The monitoring of students' activities and exposure was highly variable both among programs and between training sites (main clinic vs. affiliated site) within a program. Explicit monitoring of student exposure to handicapping conditions, either number or type, was generally not done.
- 5) There appeared to be a discontinuity in the training process with regard to exposure to various concepts. Exposure to some concepts in the classroom setting were not adequately linked to the clinical treatment setting and vice versa.
- 6) Based on the assessments of the consultant pedodontists, faculty and students, the funded programs were judged to be providing better exposure to the handicapped for their students than the comparison programs. However, the level of success was not uniform among programs. There is collateral data from the Practitioner Survey to support this conclusion.

5.2 RECOMMENDATIONS

1) Short-term Suggestions

- a) Development of explicit guidelines for program grantees to meet. The guidelines should have operational measures. For example, the program director should devote at least one-half time (20 hours per week) to the graduate pedodontic program, the student-faculty ratio should not be greater than 3 to 1, and students should be supervised at least 25 percent of the time at affiliated sites. While these norms are not the definitive levels, some operational guides should be given.
- b) Encourage some type of common reporting system, which each grantee could routinely report on the number of students enrolled, their activities, exposure to the handicapped, the total cost to operate each program, and the revenues produced by each program. (This should not be limited to grant funds.)
- c) Stimulate additional interest and research in the area of prevalence and incidence of various handicapping conditions among children, their associated dental needs, and how these needs are being met by the health care system. One way of stimulating this interest is to hold a national conference, with invited papers emphasizing the impact of dentistry on the dental health status of the handicapped.
- d) Individual training programs should first attempt a more aggressive recruitment program to attract potential students before advocating higher student stipend levels. Very little advertising, selling the strong aspects of the individual program (whether faculty quality, research potential, or the like), is done currently. It is possible for programs to compete with one another for new students in other than monetary terms.

2) Long-term Suggestions

- a) The general evaluation model developed as a part of this contract was found to have utility and can be used to evaluate a wide range of health training programs.
- b) Further research into the actual practice setting and the dental care given to handicapped children might shed some light on the impact of dental care on their dental health status. This could be done on a small scale for exploratory purposes.
- c) Both short range and long range national estimates of dental manpower requirements to treat handicapped children should be developed. The methodology for arriving at these estimates should consider attitudinal factors (e.g., willingness to treat) and technical capability derived from training related to the treatment of handicapped children. Finally, these estimates can be used to derive the appropriate level of training support.

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APPENDIX A

SITE ASSESSMENT - ITEM 1

CONFIDENTIAL: All information which permits the identification of an individual or an establishment will be held strictly confidential, will be used solely by persons engaged in, and only for the purposes of, this research and will not be disclosed or released to other persons or for any other purposes.

OMB No. 68-S75056

Approval expires 6/30/76

ITEM 1

BASIC PROGRAM DATA AND DIRECTOR INPUT

PLEASE ANSWER ALL QUESTIONS COMPLETELY. IF ADDITIONAL SPACE IS REQUIRED, PLEASE USE REVERSE SIDE OF SHEET OR INSERT ADDITIONAL SHEETS.

Name of Institution: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Name of Pedodontic
Training Program Director: _____

Telephone Number: _____
Area Code _____ Extension _____

SECTION I: Administration

1. Is this a Certificate or Degree program?

_____ Certificate

_____ Degree (If Degree, indicate name of institution awarding the degree and type of degree)

Institution: _____

Type of Degree: _____

2. Total number of months in-residence, advanced study required to complete this pedodontic training program:

Full-time Equivalent _____ months

3. Date and type of last program accreditation review by Council on Dental Education:

| Date | Type |
|-------|--|
| _____ | _____ Preliminary Provisional Approval |
| | _____ Provisional Approval |
| | _____ Conditional Approval |
| | _____ Approval |

4. What are the sources of funds, by amount and year, which help to support this program? (Report on your fiscal year or these periods, whichever is easier.)

| July 1, 1973 | July 1, 1974 | July 1, 1975 |
|---------------|---------------|-----------------------------|
| June 30, 1974 | June 30, 1975 | June 30, 1976 (Estimate) |

| | | | |
|-----------------------------|-------|-------|-------|
| General Institutional Funds | _____ | _____ | _____ |
| Special State Funds | _____ | _____ | _____ |
| Federal Capitation Grant | _____ | _____ | _____ |
| Federal Training Grant | _____ | _____ | _____ |
| Tuition Fees | _____ | _____ | _____ |
| Patient Fees | _____ | _____ | _____ |
| Private Endowment | _____ | _____ | _____ |
| Research Funds | _____ | _____ | _____ |
| Other (Specify) _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| TOTALS | _____ | _____ | _____ |

5. What did it cost to operate this pedodontic program, by source of expense and year?

| | July 1, 1973 June 30, 1974 | July 1, 1974 June 30, 1975 | July 1, 1975 June 30, 1976 (Estimate) |
|--|-------------------------------|-------------------------------|---|
| Faculty Salary | _____ | _____ | _____ |
| Resident/Intern Salary (Include Student Stipends) | _____ | _____ | _____ |
| Other Personnel | _____ | _____ | _____ |
| Travel | _____ | _____ | _____ |
| Office Supplies & Equipment | _____ | _____ | _____ |
| All other Direct Items | _____ | _____ | _____ |
| TOTALS | _____ | _____ | _____ |

6. What was the institutional overhead rate charged on grants and contracts, by year and rate base?

| | Rate | Rate Base |
|---------------------------------|-------|-----------|
| July 1, 1973 thru June 30, 1974 | _____ | _____ |
| July 1, 1974 thru June 30, 1975 | _____ | _____ |
| July 1, 1975 thru June 30, 1976 | _____ | _____ |

7. Annual tuition and fees for this pedodontic training program:

| <u>TUITION</u> | July 1, 1973 June 30, 1974 | July 1, 1974 June 30, 1975 | July 1, 1975 June 30, 1976 (Estimate) |
|-------------------|-------------------------------|-------------------------------|---|
| In State | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. |
| Out of State | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. |
| No Tuition | _____ | _____ | _____ |
| <u>OTHER FEES</u> | | | |
| _____ Type | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. |
| _____ Type | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. | _____ Per Amt. Qt./Sem. |
| No Other Fees | _____ | _____ | _____ |

8. As program director, do you feel there is adequate budget to carry out the functions of this program? (Please answer yes or no by category.)

| | YES | NO | MAYBE |
|---|-----|----|-------|
| A) Faculty Support | | | |
| B) Student Stipend Support | | | |
| C) Equipment for Students and Supplies | | | |
| D) Travel for Students | | | |
| E) Equipment for Teaching Purposes and Supplies | | | |
| F) Travel Related to Teaching Function | | | |
| G) Equipment and Supplies for Research Purposes | | | |
| H) Travel for Research Purposes | | | |
| I) Other (Please Specify) _____ | | | |

For each of the above categories, please tell what additional financial support would allow you to accomplish. (For example, more students, better quality training, etc.)

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____

SECTION II: Pedodontic Training Program Goals and Relationships with Other Programs

9. What are the general goals of this pedodontic training program? (Provide separate sheet if necessary).

10. What are the behavioral training objectives of this pedodontic training program?

11. Does this pedodontic program serve any function for other dental programs within this institution or vice versa? (Please specify) (For example, orthodontics program--advanced education to pedodontic students)

PROGRAM NAME

FUNCTIONS PERFORMED

12. Does this pedodontic program serve any function for any other medical or health related training programs within this institution or vice versa? (Please specify) (For example, community medicine~role of dentistry in community health to pedodontic students)

PROGRAM NAME

FUNCTIONS PERFORMED

13. Does this pedodontic program serve any function for institutions outside your institution or vice versa? (Please specify) (For example, Community Hospital--Clinical residency for pedodontic students)

PROGRAM NAME

FUNCTIONS PERFORMED

(If available, attach a Letter of Commitment from Affiliated or Associated Institution(s), which have a commitment to individuals with handicapping conditions, indicating the relationship and formal commitment between programs).

(NOTE: A follow-up contact will be made directly with each health program or institution listed in #13 which has a commitment to individuals with handicapping conditions.)

14. Is there an interchange of teaching faculty between your program and:

| | None | Very Little | Some | Quite a Bit |
|--|------|-------------|------|-------------|
| a) Other dental programs within this institution? | | | | |
| b) Medical programs within this institution? | | | | |
| c) Health programs or institutions outside this institution? | | | | |

15. As program director, do you feel there is a conflict between your program goals, especially related to handicapped children, and the goals of: (Please respond by yes or no, by type of goal)

GOALS

| | Teaching | Research | Community Service |
|--|----------|----------|-------------------|
| a) Other dental programs within this institution? | | | |
| b) Medical programs within this institution? | | | |
| c) Health programs or institutions outside this institution? | | | |

For each YES response, please specify the conflict: _____

16. Is this program involved in pedodontic problems in the community or within institutions for specialized populations?

_____ YES

_____ NO

If YES, how? _____

17. What are the sources of normal patients for clinical training? _____

18. What are the sources of handicapped patients for clinical training? _____

SECTION III: Dental Faculty Related to Pedodontic Program

19. For each pedodontic faculty member in the pedodontic training program, including the program director, please list the name, rank, and hours per week devoted to the pedodontic program, both full and part time. (Please include all faculty members in the pedodontic program, whether full time, part time, or adjunct member, as well as whether the duties relate to lecture, clinical, or research training.)

| | NAME | RANK | HOURS PER WEEK |
|----|-------|-------|----------------|
| a. | _____ | _____ | _____ |
| b. | _____ | _____ | _____ |
| c. | _____ | _____ | _____ |
| d. | _____ | _____ | _____ |
| e. | _____ | _____ | _____ |
| f. | _____ | _____ | _____ |
| g. | _____ | _____ | _____ |
| h. | _____ | _____ | _____ |
| i. | _____ | _____ | _____ |
| j. | _____ | _____ | _____ |
| k. | _____ | _____ | _____ |
| l. | _____ | _____ | _____ |
| m. | _____ | _____ | _____ |
| n. | _____ | _____ | _____ |
| o. | _____ | _____ | _____ |

(NOTE: A short questionnaire will be distributed during the site visit to each faculty member listed above. This questionnaire will attempt to elicit more detailed information from each faculty member on her/his role in the program and her/his attitudes related to it.)

20. Which of the following staff support is available to faculty members?

| | <u>Total Full-Time Equivalents</u> |
|------------------------|------------------------------------|
| Dental Assistant | _____ |
| Dental Hygienist | _____ |
| X-ray Technician | _____ |
| Research Assistant | _____ |
| Secretary | _____ |
| Other (Please specify) | |
| _____ | _____ |
| _____ | _____ |

SECTION IV: Pedodontic Students

21. Number of pedodontic training program enrollees and graduates since either the beginning of the program or 1965, by year.

| YEAR | NUMBER OF STUDENTS ENROLLED | | NUMBER OF GRADUATES |
|------|-----------------------------|-------------|---------------------|
| | FIRST YEAR | SECOND YEAR | |
| 1965 | | | |
| 1966 | | | |
| 1967 | | | |
| 1968 | | | |
| 1969 | | | |
| 1970 | | | |
| 1971 | | | |
| 1972 | | | |
| 1973 | | | |
| 1974 | | | |
| 1975 | | | |

22. Please list the names and addresses of each of your pedodontic training program enrollees since 1965, by year of enrollment.

| YEAR OF ENROLLMENT | LAST NAME | GRADUATED | | CURRENT OR LAST KNOWN ADDRESS |
|--------------------|-----------|-----------|----|-------------------------------|
| | | YES | NO | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

(Note: A student questionnaire will be distributed at the time of the site visit to each currently enrolled student.)

(22. Continued)

[illegible]

(22. Continued)

[illegible]

(Please use additional sheets if necessary.)

23. Do you attempt to actively recruit students into your pedodontic training program?

_____ YES _____ NO

24. Do you advertise this pedodontic training program within other dental schools?

_____ YES _____ NO

25. Do you advertise this pedodontic training program in various professional journals?

_____ YES _____ NO

If yes, which journals? _____

26. Do you have a brochure or descriptive handout which describes various aspects of the pedodontic training program?

_____ YES _____ NO

(If yes, would you please include a copy of the brochure or other form of information with your response to this questionnaire.)

27. Which of the following criteria do you use in selecting among the applicants for admission into this (degree/certificate) program: (Please answer YES or NO, by criterion, and if YES, give criterion level where applicable)

| CRITERIA | USED IN SELECTION (Yes or No) | If YES, CRITERION LEVEL |
|---|----------------------------------|-------------------------------|
| Grade Point Average in Dental School | | |
| Class Standing in Dental School | | |
| Graduate Record Examination | | |
| National Board Scores | | |
| Pattern of Academic Achievement Reflecting Progression or Retrogression | | NOT APPLICABLE |
| Experience and Training | | |
| Career Objectives | | |
| Personal Recommendations | | |
| Personal Interview | | |
| Geographical Residence | | |
| Other (Specify) _____ | | |
| _____ | | |

28. How are the pedodontic students currently in this program financially supported?

| SOURCE OF FUNDS | AMOUNT PER STUDENT PER YEAR (exclude tuition) | AMOUNT PER STUDENT PER YEAR (include tuition) |
|---|---|---|
| University-sponsored stipend or fellowship | | |
| Privately-sponsored stipend or fellowship | | |
| Federal Government-sponsored stipend or fellowship | | |
| Internship/Residency stipend related to patient revenue | | |
| Research Grant/Contract with work related requirements | | |
| Other (Specify) _____ | | |
| _____ | | |
| None | | |

If NONE currently, have you ever given financial support to students?

_____ YES

_____ NO

If NO, SKIP to Question #32.

29. Please list stipend amounts by student level since 1965 or the first year in which stipends were offered. (Amounts on an annual per student basis.)

| YEAR | 1st Year Student | 2nd Year Student |
|---------|------------------|------------------|
| 1965-66 | | |
| 1966-67 | | |
| 1967-68 | | |
| 1968-69 | | |
| 1969-70 | | |
| 1970-71 | | |
| 1971-72 | | |
| 1972-73 | | |
| 1973-74 | | |
| 1974-75 | | |
| 1975-76 | | |

30. Are these stipend or fellowship amounts similar to those paid other advanced level dental students in this institution?

_____ Higher _____ Similar _____ Lower

31. Do all students admitted into this pedodontic program receive financial assistance?

_____ YES _____ NO

If NO, what criteria are used to select those students who do receive financial assistance? _____

32. Are students admitted on a part time basis? _____ YES _____ NO

33. Are graduates of dental schools outside the United States and Canada accepted?

_____ YES _____ NO

34. Maximum number of students accepted annually:

_____ First year _____ Second year

35. Number of students presently enrolled in this program:

_____ First year _____ Second year

36. Does this program provide career counseling in helping pedodontic students in their future career decisions?

_____ All of the time _____ Some of the time

_____ Most of the time _____ Never

37. Do you personally take an active part in recommending students for specific positions?

_____ All of the time _____ Some of the time

_____ Most of the time _____ Never

38. Do your program alumni help your program in any way with students, faculty, or the general program?

_____ YES _____ NO

If yes, please specify: _____

39. As program director, do you consider the goals of outside funding sources in making decisions about the type of student you support?

_____ YES _____ NO

If YES, please explain in what ways: _____

40. Are courses presented in this pedodontic training program on the quarter system or semester system?

Quarter System _____ Semester System _____

Other (Specify) _____

41. How many courses and credit hours must a student pass for graduation, by type of program and year?
- | | 1st YEAR | 2nd YEAR |
|-------------------------|----------|----------|
| Liberal Arts | 12 | 12 |
| Business Administration | 12 | 12 |
| Education | 12 | 12 |
| Health Sciences | 12 | 12 |
| Humanities | 12 | 12 |
| Sciences | 12 | 12 |
| Social Sciences | 12 | 12 |
| Technical | 12 | 12 |
| Other | 12 | 12 |

[illegible]

Degree Program _____

Certificate Program

42. Please list each course offered directly related to the Pedodontic training program, including lecture, clinical, and seminar.

[illegible]

43. Does this pedodontic training program provide students instruction and training in the following general areas: (Indicate YES or NO by type of exposure--list course number where appropriate.)

| | LECTURE (List course number) | CLINICAL (Yes or No) | CONFERENCES AND SEMINARS (Yes or No) |
|--|------------------------------------|-------------------------|---|
| Growth and physiology of the stomatognathic structures | | | |
| Psychological, physical and social development | | | |
| Biometrics in the evaluation of clinical data | | | |
| Principals of pediatrics | | | |
| Principles of anesthesiology and pharmacology | | | |
| The scientific basis of preventive practices for oral disease | | | |
| All phases of etiology, diagnosis, and treatment planning related to cariology and restorative procedures, periodontology, occlusion and oral medicine | | | |
| Principles of corrective orthodontics including minor tooth movement | | | |
| Community care system concepts | | | |
| Speech development & related problems, including use of therapy for tongue thrust problems | | | |
| Comprehensive oral health care for children from infancy and preschool age through adolescence including the application of preventive practices | | | |
| Orthodontic diagnosis and treatment relevant to pedodontics | | | |
| Comprehensive dental care of physically, mentally and emotionally handicapped children | | | |

43. Continued

| | LECTURE (List course number) | CLINICAL (Yes or No) | CONFERENCES AND SEMINARS (Yes or No) |
|---|------------------------------------|-------------------------|---|
| In-hospital oral care for children | | | |
| Provision of dental services for patients under general anesthesia in the hospital operating room including instruction in procedures for managing emergencies that may occur in the operating room | | | |

44. Are the students exposed to regular presentations and reviews of the results of treatment for the purpose of improving subsequent treatment procedures?

_____ YES _____ NO

45. Are the students exposed to preparing records relating to history, preoperative and postoperative orders, progress notes, description of surgical procedures and summary?

_____ YES _____ NO

46. Do the students assume increasing responsibility for the continuing care and management of the same patients?

_____ YES _____ NO

47. Are students required to present diagnosis and treatment data at clinical conferences?

_____ YES _____ NO

48. Are faculty members available to supervise and instruct students in the clinic facilities here?

_____ All of the time _____ Some of the time
_____ Most of the time _____ Never

49. Are there adequate dental hygienists or assistants available to students to insure efficient treatment in the clinic facilities here?

_____ All of the time _____ Some of the time
_____ Most of the time _____ Never

50. Are there adequate clerical and stenographic personnel available to students to insure efficient operation in the clinic facilities here?

_____ All of the time _____ Some of the time
_____ Most of the time _____ Never

51. How often are departmental seminars conducted? _____ (per year)

52. Is student attendance at the departmental seminars a required part of the program?

_____ YES _____ NO

53. Are the departmental seminars directed by a member of the teaching staff?

_____ YES _____ NO

54. Are students required to develop reports and act as discussion leaders at departmental seminars?

_____ YES _____ NO

55. Do your pedodontic students have the opportunity for teaching experience?

_____ YES _____ NO

56. Is dental research activity for your pedodontic students:

_____ Required _____ Optional

Program Areas Specific to Handicapped Patients

57. Does this pedodontic training program, including aspects at other institutions, provide students instruction and training in the following specific areas related to handicapping conditions and patients: (Indicate YES or NO by type of exposure)

| | LECTURE | CLINICAL | CONF. & SEMINARS |
|--|---------|----------|---------------------|
| Normal growth and development and its relation to handicapping conditions, including the developmental model | | | |
| Distributions and etiology of handicapping conditions | | | |
| Use of the team concept in treating handicapped patients | | | |
| Comprehensive services, including community agencies, and support agencies. | | | |
| Familiarity with literature related to handicapping conditions. | | | |
| Recognition of subspecialty related to treatment of handicapped patients (e.g. cleft palate) | | | |
| <u>Dental Management of Handicapped Patients</u> | | | |
| A) Types of behavior to expect by condition | | | |
| B) Use of behavior modification techniques | | | |
| C) Management of techniques of tactile defensiveness | | | |
| D) Oral hygiene and prevention techniques by condition | | | |
| E) Record charting, history taking, and information gathering by condition | | | |
| F) Use of premedication by condition | | | |
| G) Use of general anesthesia on handicapped patients | | | |
| H) Referral of non-dental problems to other health practitioners who treat handicapped patients | | | |
| I) Management of hospital patients independently and jointly with physician | | | |

Continued on next page.

57. (Continued)

| | LECTURE | CLINICAL | CONF. & SEMINARS |
|--|---------|----------|---------------------|
| <u>Office Management of Handicapped Patients</u> | | | |
| A) Architectural accessibility (ramps, wide doors, etc.) | | | |
| B) Special equipment for handicapped patients which allow for smoother dental treatment (e.g. restraining and adaptive devices). | | | |
| C) Scheduling of handicapped patients so as not to interfere with non-handicapped patients | | | |
| D) Initiative in following up on handicapped patients | | | |
| E) Financial relationships between handicapped patients, community agencies and the providers of care | | | |

58. Below is a list of handicapping conditions. Please code the appropriate answer, by type of exposure, for each type of condition that students in this program are exposed to here at this clinic.

CODE: 0 = Not at all

1 = Once per month or less

2 = Two or three times per month

3 = Four or more times per month

| TYPE OF CONDITION | TYPE OF EXPOSURE | | |
|---|------------------|----------|------------------|
| | LECTURE | CLINICAL | CONF. & SEMINARS |
| Mental retardation (including Down's syndrome, hydrocephalus, and brain damage) | | | |
| Cerebral palsy | | | |
| Blindness | | | |
| Deafness | | | |
| Parkinsonism | | | |
| Poliomyelitis | | | |
| Spinal cord injuries | | | |
| Multiple sclerosis | | | |
| Muscular dystrophy | | | |
| Facial trauma from accidents | | | |
| Multiple handicapped | | | |
| Epilepsy | | | |
| Cleft palate (& cleft lip) | | | |
| Other craniofacial anomalies (including microstomia and micrognathia) | | | |
| Spina bifida (myelomeningocele) | | | |
| Thalidomide-induced deformities and similar malformations | | | |
| Hemophilia | | | |
| Leukemia | | | |
| Other blood dyscrasias | | | |
| Cystic fibrosis | | | |
| Cardiac disease | | | |
| Autism | | | |
| Seizure (gengival hyperplasia) | | | |
| Hyperactivity | | | |
| Other behavior problems (Specify) | | | |

59. Do you schedule all of your handicapped patients treated here at this clinic during blocks of time separate from your non-handicapped patients?

_____ YES _____ NO

60. Is there a physician routinely available for consultation in treating a handicapped patient here at this clinic?

_____ YES _____ NO

61. Is general anesthesia administered in the dental clinic for the operative dental procedures performed for handicapped patients?

_____ Routinely _____ Occasionally _____ Never

If ROUTINELY or OCCASIONALLY, who administers the general anesthetic in the clinic?

_____ Pedodontic Student

_____ Dental Instructor

_____ Other(s):

_____ Anesthesiologist

_____ Nurse Anesthetist

_____ Other (Specify) _____

62. Are in-patient pediatric wards used to provide students experience in dealing with general and oral problems in sick and chronically ill children in terms of admission, treatment, consultation, discharge and other hospital routines such as conferences, rounds, and lectures?

_____ YES _____ NO

If YES, what is the name of the in-patient facility (or facilities)?

If YES, how frequently does the student receive this exposure?

_____ (times per month/per student)

If YES, who administers the general anesthesia in the operating room?

_____ Pedodontic Student

_____ Dental Instructor

_____ Other(s):

_____ Anesthesiologist

_____ Nurse Anesthetist

_____ Other (Specify) _____

63. Is there adequate instruction and supervision in dental surgical technique to enable students to acquire the necessary skill and judgement to reach full responsibility for the surgery related to dental problems?

_____ YES

_____ NO

64. Below is a list of health manpower who might be involved in caring for the handicapped. If students in this pedodontic program receive exposure (lecture, clinical, or conference and seminar) to the role and function of any manpower type related to handicapped patients during their training here at this institution, please code the appropriate answer next to the appropriate category and column.

CODE: 0 = Not at all

1 = Once per month or less

2 = Two or three times per month

3 = Four or more times per month

| | LECTURE | CLINICAL (Practice) | CONF. & SEMINAR |
|----------------------------------|---------|------------------------|--------------------|
| Biochemist | | | |
| Child Development Specialist | | | |
| Dental Hygienist | | | |
| Other Dental Auxiliary Personnel | | | |
| Other Dental Specialties | | | |
| Dietitian | | | |
| Geneticist | | | |
| Hearing & Speech Therapist | | | |
| Hematologist | | | |
| Home Economist | | | |
| Nutritionist | | | |
| Occupational Therapist | | | |
| Physician: | | | |
| Cardiologist | | | |
| Neurologist | | | |
| Obstetrician | | | |
| Ophthalmologist | | | |
| Otolaryngologist | | | |
| Pediatrician | | | |
| Psychiatrist | | | |
| Radiologist | | | |
| Surgeon: Cardiac | | | |
| General | | | |
| Orthopedic | | | |
| Plastic | | | |
| Thoracic | | | |
| Urologist | | | |
| Physical Therapist | | | |
| Psychologist | | | |
| Public Health Nurse | | | |
| Registered Nurse | | | |
| Social Worker | | | |
| Special Education Personnel | | | |

65. Which method do your pedodontic students use most often here at the program clinic in dealing with undesirable behavior by patients, by type of patient? (Please rank from 1-9, according to frequency, with 1 = most frequent.

| TREATMENT METHOD | UNDESIRABLE BEHAVIOR BY A CHILD WITH | | |
|-----------------------------------|--------------------------------------|--------------------|----------------|
| | Physical Handicap | Mental Handicap | No Handicap |
| Behavior Modification | | | |
| Drugs | | | |
| General Anesthesia | | | |
| Hypnosis | | | |
| Inhalation Sedation | | | |
| Parents in operatory | | | |
| Physical contact, face and airway | | | |
| Physical restraint | | | |
| Other (Specify) | | | |

SECTION VI: Equipment and Facilities

Library

66. Is there a dental library here? _____ YES _____ NO

If YES, is the dental library located in the dental school building?

_____ YES _____ NO

Estimated dental library holdings:

Number of books: _____

Number of journals: _____

How accessible to students is the library? (Are there any hindrances or restrictions, such as hours, etc.?)

Is there a special library section (books, journals, and other materials) dealing with the handicapped?

_____ YES _____ NO

If YES, please explain: _____

Physical Facilities Here at Primary Training Program Facility

67. Are there any special architectural features in the facilities here which allows easier accessibility for handicapped patients? (For example, ramps, wide doors, etc.)

_____ YES

_____ NO

If YES, please specify: _____

68. Is specialized dental equipment available for the care of handicapped patients?

_____ YES

_____ NO

If yes, please specify: _____

69. Is there any type of special equipment which would facilitate the treatment of the handicapped, and the training of students in their care, which you do NOT have?

_____ YES

_____ NO

If yes, please specify: _____

70. Do the physical facilities and equipment available permit students to operate as nearly as possible under conditions that might prevail in a private office?

_____ YES

_____ NO

If no, please explain: _____

71. Are lecture and seminar rooms available? _____ YES _____ NO

If NO, please specify: _____

72. Is the pedodontic clinic here equipped with suitable radiographic and laboratory facilities?

_____ YES

_____ NO

If no, please explain: _____

73. Are facilities available here to support departmental research as well as clinical and basic research?

_____ YES

_____ NO

If no, please explain: _____

74. In your opinion, do the physical facilities, faculty and availability of sufficient numbers and variety of patient cases justify the number of students enrolled in this program?

_____ YES

_____ NO

If no, please explain: _____

Please place your completed questionnaire in the self-addressed stamped envelope and return it to Houston, Texas approximately two weeks before the site visit.

THANK YOU VERY MUCH FOR YOUR COOPERATION.

J. ROBB ASSOCIATES, INC.
West Loop Building
4848 Guiton, Suite 204
Houston, Texas 77027

APPENDIX B

PRACTITIONER SURVEY
LONG AND SHORT QUESTIONNAIRES

CONFIDENTIAL: All information which permits the identification of an individual or an establishment will be held strictly confidential, will be used solely by persons engaged in, and only for the purposes of, this research and will not be disclosed or released to other persons or for any other purposes.

O.M.B. # 68-S75056

Approval expires: June 1976

I.D. # _____

DENTAL PRACTICES QUESTIONNAIRE (Long Form)

The purpose of this survey is to ascertain the training experience and current practices of dentists in the United States relative to handicapped children.

The questionnaire is organized in three parts. Part I contains a few questions on your personal background. Part II consists of questions on your current dental practice, while Part III is composed of questions about your education and training experiences.

The questionnaire is organized in such a way that not all questions are answered by everyone. Directions are provided to indicate which questions you are to skip.

PART I - Background

1. In what city and state does the major portion of your professional activities take place?

| CITY | STATE | ZIP CODE |
|------|-------|----------|
|------|-------|----------|

2. How long have you practiced in the above location?

| | |
|------------------------|------------------------|
| _____ Less than 1 year | _____ 10 - 14 years |
| _____ 1 - 4 years | _____ 15 - 19 years |
| _____ 5 - 9 years | _____ 20 or more years |

3. In what year did you first practice dentistry? _____

4. How many years (total) have you practiced dentistry? _____

5. Birthdate: _____

Month

Year

6. Sex: _____

Male

Female

7. Place a check by each professional and/or scientific association in which you now hold membership:

MULTI SPECIALTY ORGANIZATIONS

- ____ American Dental Association
____ National Dental Association
____ American Society of Dentistry
for Children
____ Academy of Dentistry for the
Handicapped
____ American Association of
Hospital Dentists
____ State Dental Association
____ County Dental Association
____ International Association of
Dental Research
____ American Society of Preventive
Dentistry
____ Other (Specify)

SINGLE SPECIALTY ORGANIZATIONS

- ____ American Society of Oral Surgeons
____ American Association of Ortho-
dontics
____ American Association of Endo-
dontists
____ American Academy of Periodon-
tology
____ American Academy of Pedodontists
____ American Prosthodontic Society
____ American Academy of General
Practice
____ American Academy of Oral Patho-
logy
____ Other (Specify)

8. List the health-related community organizations of which you are a member.

9. Specify the title and nature of any professional positions you now hold, including both clinical and academic activities (such as Clinic Director, Professor of Oral Surgery, etc.)

TITLE

NATURE OF POSITION

PART II - Dental Practice

10. Do you treat children? YES NO

If YES, do you treat
handicapped children?

If NO, Skip to #35.

YES

NO

If NO, skip to #35.

• If YES, please proceed to #11.

NOTE: There are several questions in the remainder of Part II requesting various types of information about your Dental Practice during a recent "typical" month's time period. By typical, we mean during a month of 1975 when you worked your routine schedule, with no vacation or illness, and during which your patients were representative of the types of patients you treat year-round, avoiding any seasonal variation. We are looking for reliable responses which are representative of your typical practice. In answering each of these questions for a typical month, would you please choose a typical month in 1975 and use the same month for each answer. (For example, if you were on vacation for a week in July 1975, or if you treat children much more frequently during July than the remainder of the year, then July would not be a typical month for you.)

The typical month of 1975 which I am using for my responses is .

11. Below is a list of handicapping conditions. Put a check next to the types of handicapped children (less than 20 years of age) for which you provided dental care during your typical month in 1975.

- _____ Mental retardation (including
- _____ Down's syndrome, hydrocephalus,
- _____ and brain damage)
- _____ Cerebral palsy
- _____ Blindness
- _____ Deafness
- _____ Parkinsonism
- _____ Poliomyelitis
- _____ Spinal cord injuries
- _____ Multiple sclerosis
- _____ Muscular dystrophy
- _____ Facial trauma from accidents
- _____ Multiple handicapped
- _____ Epilepsy
- _____ Cleft palate (& cleft lip)
- _____ Other craniofacial anomalies
- _____ (including microstomia and
- _____ micrognathia)

- _____ Spina bifida
- _____ (myelomeningocele)
- _____ Thalidomide-induced
- _____ deformities and similar
- _____ malformations
- _____ Hemophilia
- _____ Leukemia
- _____ Other blood dyscrasias
- _____ Cystic fibrosis
- _____ Cardiac disease
- _____ Autism
- _____ Seizure (gengival hyperplasia)
- _____ Hyperactivity
- _____ Other behavior problems
- _____ (Specify)

12. Do you record information in your dental patient charts about the handicapping conditions present when you treat a handicapped child?

_____ Always _____ Usually _____ Occasionally _____ Never

13. Are most of the handicapped children which you treat referred to you specifically because they are handicapped?

_____ YES _____ NO

14. During your typical month in 1975, what proportion of the handicapped children referred to you did you treat?

_____ %

15. During your typical month in 1975, what percent of the handicapped children (less than 20 years of age) which you treated were referred to you from each of the following sources?

| REFERRAL SOURCE | % REFERRED FROM |
|---------------------------------|-----------------|
| Other dentists | % |
| Community Service Agencies | % |
| Day Schools for the Handicapped | % |
| Institutions | % |
| Hospitals | % |
| Clinics | % |
| Parent Groups | % |
| Other (Specify) | % |
| TOTAL | 100 % |

16. Do you schedule all of your handicapped child patients during blocks of time separate from your non-handicapped child patients?

_____ Always _____ Usually _____ Occasionally _____ Never

17. Would you please complete the table below for your typical month in 1975.

| Time Period | Number of Different Patients Treated | Number of Patient Encounters Provided |
|---|--|---|
| Handicapped Children (Less than 20 years of age) | | |
| Non-handicapped Children | | |
| Handicapped Adults (20 years of age or older) | | |
| Non-handicapped Adults | | |
| TOTAL ALL PATIENTS | | |

18a. During your typical month in 1975, what was the age distribution of both the total number of different patients treated and the handicapped patients only? (Please fill in PERCENTAGES in the table below.)

| | TOTAL Patients | Handicapped Patients ONLY |
|-------------------|----------------|------------------------------|
| Birth - 4 years | % | % |
| 5 - 9 years | % | % |
| 10 - 14 years | % | % |
| 15 - 19 years | % | % |
| 20 years or older | % | % |
| TOTAL | 100 % | % |

b. How were these percentages arrived at?

_____ Management Information System

_____ Special chart review

_____ Educated guess

_____ Other (Specify) _____

19. During your typical month in 1975, how many children with one or more of the following handicapping conditions did you treat?

| | |
|------------------------------|-----------------------------|
| _____ Cerebral palsy | _____ Orthopedic conditions |
| _____ Hemophilia | _____ Cardiac conditions |
| _____ Oral cleft | _____ Other (Specify) |
| _____ Emotional disturbances | _____ |
| _____ Mental retardation | _____ |

20. During your typical month in 1975, what proportion of the total number of handicapped children did you treat at various locations?

| PLACE OF TREATMENT | PROPORTION TREATED |
|---|--------------------|
| Office | % |
| Hospital | % |
| Social-service clinic for the Handicapped | % |
| Other (Specify) | % |
| TOTAL | 100 % |

21. Code in the appropriate column the use of premedication when treating a handicapped child, using the following code:

R = Routine Use
O = Occasional Use
N = Never Use

(Please enter a code in EACH box.)

| TYPE OF PREMEDICATION | ORAL | I.V. | I.M. | NASAL | SUPPOSITORY |
|------------------------|------|------|------|-------|-------------|
| Barbiturate | | | | | |
| Tranquilizer | | | | | |
| Narcotic | | | | | |
| Inhalation Sedation | | | | | |
| Combinations (Specify) | | | | | |
| Other (Specify) | | | | | |

22a. Is general anesthesia administered in your dental office for the operative procedures performed on handicapped children?

_____ Routinely _____ Occasionally _____ Never

b. If routinely or occasionally, who administers the general anesthesia in your office?

_____ Self

_____ Others: _____ Anesthesiologist

_____ Nurse Anesthetist

_____ Other (Specify) _____

23. Is there a physician routinely available to you during your office practice for consultation in your treatment of handicapped children?

_____ YES _____ NO

24a. Did you receive any consultation in the dental treatment of any of the handicapped children which you treated during your typical month in 1975.

_____ YES _____ NO

b. If YES, please check any of the following health care personnel who provided consultation to you in treating these handicapped children during this time period.

_____ Biochemist
_____ Child Development Specialist
_____ Dental Hygienist
_____ Other dental auxiliary
_____ personnel
_____ Other dental specialties
_____ Dietitian
_____ Geneticist
_____ Hearing & Speech therapist
_____ Hematologist
_____ Home economist
_____ Nutritionist
_____ Occupational therapist
_____ Physician:
_____ Cardiologist
_____ Neurologist
_____ Obstetrician
_____ Ophthalmologist
_____ Otolaryngologist

Physician (Continued)

_____ Pediatrician
_____ Psychiatrist
_____ Radiologist
_____ Surgeon
_____ Cardiac
_____ General
_____ Orthopedic
_____ Plastic
_____ Thoracic
_____ Urologist
_____ Physical therapist
_____ Psychologist
_____ Public health nurse
_____ Registered nurse
_____ Social worker
_____ Special Education personnel

25a. Do you have a hospital appointment with operating room privileges?

_____ YES _____ NO

b. If YES, please check the frequency of use of the operating room for handicapped children during your typical month in 1975.

| | |
|-------------------|------------------------|
| _____ NONE | _____ Four times |
| _____ One time | _____ 5-10 times |
| _____ Two times | _____ 11 or more times |
| _____ Three times | |

26. What kind of dentistry do you perform most often on handicapped children? (Please rank 1-8, with 1 as most frequent. If NEVER, please code with "N".)

| | |
|----------------------------------|-------------------------------|
| _____ Restorative dentistry | _____ Prosthetics (removable) |
| _____ Endodontics & Pulp therapy | _____ Prosthetics (fixed) |
| _____ Oral surgery | _____ Periodontics |
| _____ Interceptive orthodontics | _____ Preventive |

27. To what type of handicapped child do you feel the most confident in giving dental treatment?
(Please rank 1-7, with 1 as the most confident.)

| | |
|------------------------------|-----------------------------|
| _____ Cerebral palsy | _____ Orthopedic conditions |
| _____ Hemophilia | _____ Cardiac conditions |
| _____ Oral cleft | _____ Other (Specify) |
| _____ Emotional disturbances | _____ |
| _____ Mental retardation | _____ |

28. Which method do you use most often in dealing with undesirable behavior by children, by type of patient? (Please rank from 1-9, according to frequency, with 1 as the most frequent.)

| TREATMENT METHOD | UNDESIRABLE BEHAVIOR BY A CHILD WITH | | |
|-----------------------------------|--------------------------------------|-----------------|-------------|
| | Physical Handicap | Mental Handicap | No Handicap |
| Behavior Modification | | | |
| Drugs | | | |
| General Anesthesia | | | |
| Hypnosis | | | |
| Inhalation Sedation | | | |
| Parents in operatory | | | |
| Physical contact, face and airway | | | |
| Physical restraint | | | |
| Other (Specify) | | | |

- 29a. How many employees were on your payroll during your typical month in 1975?

- b. If one or more, specify type of employee:

| | # of Full-time Employees | # of Part-time Employees |
|---|--------------------------|--------------------------|
| Dentists | _____ | _____ |
| Dental hygienists | _____ | _____ |
| Chairside dental assistants (Include all employees who spend <u>90% or more</u> of their time assisting at chair.) | _____ | _____ |
| Chairside dental assistants (Include all other employees who spend some, but <u>less than 90%</u> , of their time assisting at chair.) | _____ | _____ |
| Dental technicians | _____ | _____ |
| Secretaries, receptionist | _____ | _____ |
| Other employees | _____ | _____ |

30. During an average week, how many hours do you estimate that you spend in the following professional dental activities:

HOURS PER WEEK

Dental Patient Treatment:

Office Practice

Hospital-based Practice

Community Agency/Institution Practice

Government-related Institutional Practice

Administrative Duties

Teaching - Dental Related

Research - Dental Related

Other - Dental Related (Specify)

TOTAL HOURS PER WEEK

- 31a. Please estimate the percent of time you spend, and the percent of your net income you receive from treating handicapped children.

Please check one box for TIME and one box for INCOME.

| PERCENTAGE | TIME | INCOME |
|--------------|------|--------|
| Less than 5% | | |
| 5% to 9% | | |
| 10% to 14% | | |
| 15% to 19% | | |
| 20% to 24% | | |
| 25% and over | | |

- b. Do you consider the income you receive from treating handicapped children commensurate with the time you spend?

_____ YES

_____ NO

32a. Do you use a different fee schedule for services provided to handicapped children, as compared to the rest of your child patients?

_____ YES _____ NO

b. If YES, please explain how it differs and why it differs.

33a. Are you currently conducting any research related to handicapped children?

_____ YES _____ NO

b. If YES, briefly describe the research:

34. In your opinion, what type of specialized training or continuing education (if any) would be useful in your current practice in relation to treating handicapped children?

35a. If you are not now giving dental care to handicapped children, are you interested and available to give dental treatment to handicapped children?

_____ YES

_____ NO

_____ Am currently treating
handicapped children

b. If YES, have you sought out any community agencies to tell them of your availability for referrals?

_____ YES

_____ NO

36. What was your approximate net income from dental practice for the calendar year of 1974? *(If recently returned from the service or internship, please estimate your annual net income on the basis of monthly income.)*

_____ Under \$20,000

_____ \$20,000 to \$34,999

_____ \$35,000 to \$49,999

_____ \$50,000 to \$64,999

_____ \$65,000 and over

37. Do you provide consultation services to programs or organizations for handicapped children?

_____ YES

_____ NO

38. Do you serve on a board or advisory committee of a program for handicapped children?

_____ YES

_____ NO

39. What do you perceive as the greatest deterrent to dentists providing dental services to handicapped children?

PART III - Training

40. Have you received education on the dental treatment of handicapped children as part of a post-doctoral or post-graduate pedodontic program?

_____ YES _____ NO

41a. Have you ever had any formal classroom education dealing with the dental treatment of handicapped children?

_____ YES _____ NO

b. If YES, please check the appropriate sources below:

_____ Undergraduate

_____ Post-doctoral or post-graduate

_____ Continuing Education

_____ Other (Specify) _____

42a. Have you received any clinical training dealing with the dental treatment of handicapped children?

_____ YES _____ NO

b. If YES, please specify: _____

*IF YOU RESPONDED YES TO ANY OF QUESTIONS 40, 41, or 42
please continue on to question #43.*

*IF YOU RESPONDED NO TO ALL QUESTIONS 40, 41, and 42
please skip to question #48.*

43. How many handicapped children (total) did you treat during your training?

_____ 0 _____ 11-20

_____ 1-5 _____ 21-50

_____ 6-10 _____ 51 or more

44. During your training, what kind of dentistry did you perform on handicapped children? (Please rank 1-8, with 1 as most frequent. If NEVER, please code with "N".)

Restorative dentistry

Prosthetics (removable)

Endodontics & pulp therapy

Prosthetics (fixed)

Oral surgery

Periodontics

Interceptive orthodontics

Preventive

45. Below is a list of health manpower who might be involved in caring for the handicapped. If you received exposure (classroom and/or clinical) to the role and function of any manpower type related to handicapped children during your training, please code the appropriate answer next to the appropriate category and column.

CODE: 0 = Not at all

2 = Two times per month

1 = Once per month or less

3 = Three or more times per month

| | Classroom (Academic) | Clinical (Practice) |
|----------------------------------|-------------------------|------------------------|
| Biochemist | | |
| Child Development Specialist | | |
| Dental Hygienist | | |
| Other Dental Auxiliary Personnel | | |
| Other Dental Specialties | | |
| Dietitian | | |
| Geneticist | | |
| Hearing & Speech Therapist | | |
| Hematologist | | |
| Home Economist | | |
| Nutritionist | | |
| Occupational Therapist | | |
| Physician: Cardiologist | | |
| Neurologist | | |
| Obstetrician | | |
| Ophthalmologist | | |
| Otolaryngologist | | |
| Pediatrician | | |
| Psychiatrist | | |
| Radiologist | | |
| Surgeon: Cardiac | | |
| General | | |
| Orthopedic | | |
| Plastic | | |
| Thoracic | | |
| Urologist | | |
| Physical Therapist | | |
| Psychologist | | |
| Public Health Nurse | | |
| Registered Nurse | | |
| Social Worker | | |
| Special Education Personnel | | |

46. How often did you use the operating room for the dental treatment of handicapped children during your training?

_____ NEVER

_____ 5-10 times

_____ 1-4 times

_____ 11 or more times

47. Below is a list of handicapping conditions. In Column A, please check all those conditions which your handicapped child patients had during your clinical training. In Column B, please check those five conditions which your handicapped child patients have had which you have given dental treatment most often since you began practicing dentistry. In Column C, please check those five conditions which your handicapped child patients have had which you have given dental treatment least often since you began practicing dentistry.

| | A ANY treated in <u>training</u> | B Check five <u>MOST</u> treated in <u>Practice</u> | C Check five <u>LEAST</u> treated in <u>Practice</u> |
|--|--|--|---|
| Mental retardation (including Down's syndrome, hydro- cephalus, and brain damage | _____ | _____ | _____ |
| Cerebral palsy | _____ | _____ | _____ |
| Blindness | _____ | _____ | _____ |
| Deafness | _____ | _____ | _____ |
| Parkinsonism | _____ | _____ | _____ |
| Poliomyelitis | _____ | _____ | _____ |
| Spinal cord injuries | _____ | _____ | _____ |
| Multiple sclerosis | _____ | _____ | _____ |
| Muscular dystrophy | _____ | _____ | _____ |
| Facial trauma from accidents | _____ | _____ | _____ |
| Multiple handicapped | _____ | _____ | _____ |
| Epilepsy | _____ | _____ | _____ |
| Cleft palate (& cleft lip) | _____ | _____ | _____ |
| Other craniofacial anomalies (including microstomia & micrognathia) | _____ | _____ | _____ |
| Spina bifida (myelomeningocele) | _____ | _____ | _____ |
| Thalidomide-induced deformities and similar malformations | _____ | _____ | _____ |
| Hemophilia | _____ | _____ | _____ |
| Leukemia | _____ | _____ | _____ |
| Other blood dyscrasias | _____ | _____ | _____ |
| Cystic fibrosis | _____ | _____ | _____ |
| Cardiac disease | _____ | _____ | _____ |
| Autism | _____ | _____ | _____ |
| Seizure (gengival hyperplasia) | _____ | _____ | _____ |
| Hyperactivity | _____ | _____ | _____ |
| Other behavior problems (Specify) | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

48. Please list the colleges or universities which you have attended, fields of specialization, degrees or certificates received, and year of receipt.

| INSTITUTION (Most recent first) | MAJOR FIELD | DEGREE OR CERTIFICATE | YEAR WORK COMPLETED |
|------------------------------------|-------------|--------------------------|------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

49. In retrospect, do you feel you had sufficient exposure to handicapped children in your training?

_____ YES _____ NO

50. Indicate the sources of your financial support during your post-doctoral or post-graduate training. (If multiple sources, please rank in order of importance, with 1 = greatest support.)

_____ No post-doctoral or post-graduate training

_____ University-sponsored fellowship or stipend

_____ Privately-sponsored fellowship or stipend

_____ Federal government sponsored fellowship or stipend

_____ Internship/Residency stipend

_____ Research Grant/Contract with work-related requirements

_____ Government loan programs

_____ G.I. Benefits

_____ Part-time dental practice

_____ Spouse

_____ Other (Specify)

THANK YOU VERY MUCH FOR YOUR COOPERATION.

Please place your questionnaire in the stamped envelope and drop it in the mail.

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West Loop Building
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Houston, Texas 77027

☐

Check here if you would like to receive the results of the study.

CONFIDENTIAL: All information which permits the identification of an individual or an establishment will be held strictly confidential, will be used solely by persons engaged in, and only for the purposes of, this research and will not be disclosed or released to other persons or for any other purposes.

O.M.B. # 68-S75056

Approval expires: June 1976

I.D.# _____

DENTAL PRACTICES QUESTIONNAIRE (Short Form)

The purpose of this survey is to ascertain the training experience and current practices of dentists in the United States relative to handicapped children.

PART I - Background

1. In what city and state does the major portion of your professional activities take place?

_____ CITY _____ STATE _____ ZIP CODE

2. How long have you practiced in the above location?

| | |
|------------------------|------------------------|
| _____ Less than 1 year | _____ 10 - 14 years |
| _____ 1 - 4 years | _____ 15 - 19 years |
| _____ 5 - 9 years | _____ 20 or more years |

3. In what year did you first practice dentistry? _____

4. How many years (total) have you practiced dentistry? _____

PART II - Dental Practice

5. Do you treat children? _____ YES _____ NO

If YES, do you treat
handicapped children?

↳ If NO, Skip to #16a.

_____ YES

_____ NO

↳ If NO, skip to #16a.

↳ If YES, please proceed to NOTE and 6.

NOTE: There are several questions in the remainder of Part I requesting various types of information about your Dental Practice during a recent "typical" month's time period. By typical, we mean during a month of 1975 when you worked your routine schedule, with no vacation or illness, and during which your patients were representative of the types of patients you treat year-round, avoiding any seasonal variation. We are looking for reliable responses which are representative of your typical practice. In answering each of these questions for a typical month, would you please choose a typical month in 1975 and use the same month for each answer. (For example, if you were on vacation for a week in July 1975, or if you treat children much more frequently during July than the remainder of the year, then July would not be a typical month for you.)

The typical month of 1975 which I am using for my responses is _____.

6. Are most of the handicapped children which you treat referred to you specifically because they are handicapped?

_____ YES _____ NO

7. During your typical month in 1975, what proportion of the handicapped children referred to you did you treat?

_____ %

8. Do you schedule all of your handicapped child patients during blocks of time separate from your non-handicapped child patients?

_____ Always _____ Usually _____ Occassionally _____ Never

9. Would you please complete the table below for your typical month in 1975.

| | Number of <u>Different Patients</u> Treated |
|---|---|
| Handicapped Children (Less than 20 years of age) | |
| Non-handicapped Children | |
| Handicapped Adults (20 years of age or older) | |
| Non-handicapped Adults | |
| TOTAL ALL PATIENTS | |

10. During your typical month in 1975, how many children with one or more of the following handicapping conditions did you treat?

| | |
|------------------------------|-----------------------------|
| _____ Cerebral palsy | _____ Orthopedic conditions |
| _____ Hemophilia | _____ Cardiac conditions |
| _____ Oral cleft | _____ Other (Specify) |
| _____ Emotional disturbances | _____ |
| _____ Mental retardation | _____ |

11. What kind of dentistry do you perform most often on handicapped children? (Please rank 1-8, with 1 as most frequent. If NEVER, please code with "N".)

| | |
|----------------------------------|-------------------------------|
| _____ Restorative dentistry | _____ Prosthetics (removable) |
| _____ Endodontics & Pulp therapy | _____ Prosthetics (fixed) |
| _____ Oral surgery | _____ Periodontics |
| _____ Interceptive orthodontics | _____ Preventive |

12. How many employees were on your payroll during your typical month in 1975?

13. Do you consider the income you receive from treating handicapped children commensurate with the time you spend?

_____ YES _____ NO

14. Do you use a different fee schedule for services provided to handicapped children, as compared to the rest of your child patients?

_____ YES _____ NO

15. In your opinion, what type of specialized training or continuing education (if any) would be useful in your current practice in relation to treating handicapped children?

16. If you are not now giving dental care to handicapped children, are you interested and available to give dental treatment to handicapped children?

_____ YES _____ NO _____ Am currently treating handicapped children

- b. If YES, have you sought out any community agencies to tell them of your availability for referrals?

_____ YES _____ NO

17. What do you perceive as the greatest deterrent to dentists providing dental services to handicapped children?

PART III - Training

18. Have you received education on the dental treatment of handicapped children as part of a post-doctoral or post-graduate pedodontic program?
- _____ YES _____ NO
19. Have you ever had any formal classroom education dealing with the dental treatment of handicapped children?
- _____ YES _____ NO
20. Have you received any clinical training dealing with the dental treatment of handicapped children?
- _____ YES _____ NO
21. How many handicapped children (total) did you treat during your training?
- _____ 0 _____ 11-20
- _____ 1-5 _____ 21-50
- _____ 6-10 _____ 51 or more
22. Please list the colleges or universities which you have attended, fields of specialization, degrees or certificates received, and year of receipt.
- | INSTITUTION
(Most recent first) | MAJOR FIELD | DEGREE OR
CERTIFICATE | YEAR WORK
COMPLETED |
|------------------------------------|-------------|--------------------------|------------------------|
| | | | |
| | | | |
| | | | |
23. In retrospect, do you feel you had sufficient exposure to handicapped children in your training?
- _____ YES _____ NO

THANK YOU VERY MUCH FOR YOUR COOPERATION.

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